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COMMUNITY-WIDE CHEST X-RAY SURVEYS AND THE GENERAL PRACTITIONER

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IF tuberculosis is to be effectively controlled in the United States and finally rendered powerless to destroy thousands of American lives, the practicing physician must increasingly lend his knowledge and skills to the concentrated action of organized agencies that now are engaged in a total assault on this community and family disease. The health department, even when its performance is activated by a systematized plan for tuberculosis control, cannot succeed alone. The vigilance, the insight, the proximity to the people, which uniquely the private physician possesses, must be drawn upon for the invigoration and enhancement of current resources.

Any carefully planned program of control recognizes and uses the important talents and the strategic community position of the general practitioner. Indeed, it must be said that the physician in private practice is the principal force in the control of tuberculosis; and, certainly, in case finding, as exemplified by city-wide x-ray surveys, there can be no question of the individual practitioner's significant contribution. Such surveys bring into prominence the true role of each participating group—the health department, the tuberculosis association, and the local medical society. The members of this last group largely determine the success or failure of any survey anywhere in the country. Leadership in such a community enterprise must come from them. The driving force behind all action to find and treat and cure tuberculous persons must arise from a

unanimity of professional purpose and must be implemented by the experience and brains of the local medical society members.

In a few communities, there has been expressed occasionally a certain apprehension concerning the effect of community-wide mass radiography projects on private practice. Experience, however, has demonstrated that newly discovered tuberculous patients and their families go to their family physicians for supervision, advice, and care. Mass x-ray surveys disclose a surprising number of early cases that, though asymptomatic, require long-term follow-up and guidance.

Increased knowledge of the epidemiology of tuberculosis impels us to direct our attention not only to the individual tuberculous person, but to the community as a whole. Unless surveys are done, relatively few tuberculous persons in any community are discovered before symptoms develop, and fewer still come under the care of physicians experienced in diseases of the chest. One cannot tell how many other infectious persons are never seen by physicians. During lifetimes they are spreaders of disease. It must be emphasized that the community, in which hidden cases of tuberculosis are positive disease entities, is of greater moment than is the person who spontaneously comes under care. There can be no control worthy of our respect if, in any given city, over half of the cases, especially early ones, are hidden from our view.

Not only must such a program to find hidden infectious cases be extensive, but it also must be intensive in action and limited in time. Indeed,

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one of the most interesting aspects of mass radiography programs is the time element.

It has been emphasized in recent years that the most effective method of controlling tuberculosis is by means of chest x-ray examinations of the adult population in a definite period of time. In an attempt to achieve this objective, the U. S. Public Health Service is assisting state and local health departments with equipment, personnel, and consultation. Indeed, through demonstration of the effectiveness of community-wide mass x-ray surveys, the people of the nation now realize more fully the seriousness of the tuberculosis problem in their communities and are initiating action to stamp out the disease.

The action prompted by this new technique has often been interrupted by confusion of public health principles, a condition occasioned by varying approaches to tuberculosis control.

One group believes that the single technique of examining contacts of known tuberculous persons will discover all the new cases in the community. Another group advocates an annual tuberculin test of every person as the sole means of discovering all people with tuberculosis. A third group, mostly epidemiologists, emphasizes the damage done by people with hidden tuberculosis and by their many unknown contacts, and urges a total assault on the disease by means of (1) community-wide x-ray surveys done within a deliberately limited period of time; (2) the concurrent establishment of adequate follow-up facilities and the examination of contacts of previously known and newly discovered tuberculous persons, and (3) tuberculin testing of samples of the population at stated intervals.

Family studies and careful follow-up work in some of the best health departments in the country have shown that examination of contacts discovers as little as 25 per cent of new cases reported each year. In other words, only one out of four new cases may be found by examining contacts of previously known patients. Three out of four are new cases from the apparently healthy population, about whom there has been no previous record. Moreover, the principle of examining the adult population in a limited time, which is so important in the control of tuberculosis, cannot be effectively applied in a program which examines the contacts of known tuberculous persons only. Too large a portion of the population is not reached at all. Unless contact examination

is reinforced by other case-finding services, intense and continuous exposure of the public to hidden cases will occur. In addition, this method, if used alone, is prodigal of time, personnel, and money, and can at best be only partially effective.

Annual tuberculin testing of the entire population of the United States, accompanied by x-ray examination of reactors, has been shown to be impracticable. Particularly in large cities the major portion of the adults are reactors to tuberculin, and little is gained by tuberculin testing before x-ray examination. Tuberculin testing of sample groups of the community at intervals is useful in determining changes in the infection rate from year to year. After the spreaders of the disease have been identified, treated, and isolated, and contacts supervised, it might be desirable to test those whole communities where the infection rate is low. The tuberculin test, moreover, is a most efficient tool in the differential diagnosis of tuberculosis after the screening x-ray examination.

With full use of resources heretofore unrealized and with a resolute determination to wipe out tuberculosis as a social and individual problem, the large and small communities of the entire United States could be covered by mass radiography teams in less than five years' time.

These modern methods, combined with efficient clinical and laboratory procedures for exact diagnosis, will give communities a precise knowledge of the local tuberculosis problem and will form the basis for realistic plans to remove the danger of tuberculous infection and disease. Adequately aided by money, trained personnel, and medical facilities, every aroused community can bring about the defeat of tuberculosis among its citizens.

Tuberculosis presents at once a challenge and an opportunity to the general practitioner. Thousands of persons who have tuberculosis go to private physicians for other illnesses, and no official agency ever sees them. Although the physician deals directly with the source material of tuberculosis, he often does not recognize the early stages of the disease because he does not constantly search for tuberculosis with the tools at his command.

Too often it is assumed that the control of tuberculosis is solely the health department's domain of action. This is not true, nor can it ever be true, so long as men practice the ancient art

of medicine. The family doctor in the city, the country doctor going about from farm to farm, the village doctor in his office over the drug store know the people, have their trust, and guide their physical destinies. The educational pamphlets of a hundred organizations cannot have the enduring effect nor the permeating persuasiveness of the doctor's personal advice. Tuberculosis is so deeply a personal disease that news of its tragic onset or advance can be more calmly accepted when its source is the family doctor and not a stranger from a distant agency.

Participation by the private physician in the control of tuberculosis need be no trouble in terms of time or technique. There are many ways in which the private physician can contribute his talents as a professional man and his influence as a community leader in any integrated program of control. The use of the intracutaneous tuberculin test of chest x-ray film on every new patient who has not been recently examined for tuberculosis should be a fundamental routine; this is a continuing and essential part of the community-wide plan. Reactors to tuberculin should have chest x-ray films made and interpreted by physicians with training in chest diseases. The general practitioner can get expert help from sanatorium physicians, chest specialists, and radiologists in his area on all routine chest films. Regularity of such conferences with more highly specialized colleagues will provide many opportunities to develop skills in the interpretation of films. Local health departments and tuberculosis associations can make special consultation service available for films of indigent patients.

It has been estimated that nearly 4 per cent of all persons who visit physicians' offices complain of cough or expectoration. The alert physician will insist upon a sputum examination of all such patients. Such practice will be rewarded by the discovery of tubercle bacilli in three or four out of every 100 specimens examined. The family doctor will fairly often discover to his astonishment that a patient with slowly resolving pneumonia has an acid-fast reason for prolonged convalescence.

In less populous areas the general practitioner is required to carry on case finding and follow-up almost singlehanded. He must give advice and encouragement to his tuberculous patients and their families. Indeed, it is at this time that the practical philosophy of the private practitioner

is of great moment—at the height of that crisis which often occurs upon the announcement of tuberculosis. It is at this time that the general practitioner can bring all his talents into play. He is aware of the whole person. He knows the patient's background, habits, aspirations, and desires. He does not think of his patient merely as a pair of lungs; he thinks of a man of spirit as well as of body, who for a time has come, through tuberculosis, upon disaster.

Through the utilization of modern methods of case finding, the general physician can extend the frontiers of medicine. Those physicians who have not had actual experience with these new techniques should be provided with training by the county medical society, the medical school, the health department and the tuberculosis association. Postgraduate training and continuation study should be provided, so that practitioners who are removed from centers of medical knowledge may take advantage of the latest information. By means of such training, the case finding of the general practitioner can be integrated with the case finding of official and voluntary agencies. The private physician has a vital part to play in the campaign against tuberculosis; the success of the whole movement may well be determined by the efforts and leadership of general practitioners.

The private physician's interest and enthusiasm will be increased and, as a result, his effectiveness as a worker in the community-wide program of tuberculosis control will grow if he takes the time to learn about some of the latest advances in the field. A few of the more noteworthy developments merit your attention.

Within recent years some significant contributions have been made to our understanding of the tuberculin test and chest x-ray film. These developments should enable us to understand better how and why the tubercle bacillus invades the human body. Studies by Furcolow and co-workers have shown that there are great variations in human sensitivity to tuberculin and its products, depending upon the dosage used and the characteristics of the population groups tested. It was demonstrated that effective contact with the tubercle bacillus appears markedly to increase sensitivity to tuberculin (very small doses give typical reactions); on the other hand, almost all persons tested will be reactors if sufficiently large doses are given. (However, as the size of the dose

increases, the proportion of typical reactions increases also, that is, reactions that often appear early and disappear early and are soft and spongy in appearance.) Consequently, proper interpretation of tuberculin tests requires a knowledge of the size of the dose and the type of product used.

It appears that the tuberculin sensitivity of patients suffering from active tuberculosis is at such a high level that the infection in these persons may be detected by the use of an exceedingly small dose of old tuberculin (OT) or of PPD (purified protein derivative). The authors point out that an intermediate dosage of approximately 1/10,000 mg. of the particular PPD used in their studies was sufficient to pick up a high proportion of infected persons. It is significant from the point of view of usefulness of tuberculin testing for determining infection rates and for differential diagnosis that both children and adults with active tuberculosis almost always are reactors to tuberculin, except in the terminal stages of the disease.

Palmer and his co-workers have pointed out that one of the significant problems in tuberculosis involves the marked variations, in different parts of the country, of the frequency of pulmonary calcification observed in x-ray films of the chest, especially among nonreactors to the tuberculin test. This is striking in view of the fact that pulmonary calcification is generally interpreted as evidence of healed tuberculosis. There is incomplete epidemiological evidence that tuberculosis is the only important cause of such findings. Early in 1940 Palmer and his co-workers were puzzled by the high correlation between nonreactors to tuberculin and pulmonary calcification. They began to search for other causes of calcification; coccidioidin reactions were studied in relation to pulmonary calcification and failed to show any correlation on a geographic basis. It was natural to search for other fungi as one of the offending factors.

About this time Christie and his group in Tennessee were concerned with the same problem. Christie had some children under his care who were nonreactors to tuberculin and had pulmonary calcifications. The patients reacted to histoplasmin, the testing material prepared from the fungus *Histoplasma capsulatum*. This relationship suggested to Palmer the desirability of testing a large number of student nurses throughout the country, in order to determine the relationship of histoplasmin sensitivity to tuberculin sensitivity

and pulmonary calcification. Preliminary reports from Palmer and his group indicate that (1) a mild, probably subclinical, infection with *Histoplasma capsulatum* (or immunologically related organisms) is widely prevalent in certain states and relatively infrequent in others, (2) that in general those states in which the frequency of reaction to histoplasmin is high are those in which pulmonary calcification is also high, but reaction to tuberculin is low, and (3) that a high proportion of the pulmonary calcification observed in x-ray films of nonreactors to tuberculin is not due to tuberculosis.

A recent study, based on an analysis of skin tests of siblings found among children who were lifetime residents of the metropolitan area of Kansas City, Missouri, is extremely interesting because it demonstrates that there is a similarity of histoplasmin reactions among children of the same family. The percentage of reactors is higher among children whose older sibling does not react.

The similarity grows less marked as the children grow older: the difference in the percentage of reactors between children with an older sibling who reacts and children with an older sibling who does not, increases with increasing age of the older child.

The closeness in age of siblings influences the degree of similarity, as shown by the fact that the differences in percentage of reactors among siblings of a reactor and of a nonreactor are greater when there is no more than two years' difference in age between the two children.

After the similarity between siblings produced by the known factors affecting the frequency of histoplasmin reactors (geography, age, sex, and race) has been eliminated, there is still present some factor which makes siblings of a reactor more likely to react to histoplasmin than siblings of a nonreactor.

The epidemiological evidence indicates that a very high proportion of the pulmonary calcification observed in individuals living in these states may be due to infection with *Histoplasma capsulatum* or related organisms and not to tuberculosis. The epidemiological studies are being pursued vigorously by several groups throughout the country. Many of the old concepts of primary and reinfection tuberculosis will have to be reconsidered in the light of these recent findings.

It was in the decade between 1935 and 1945

that students of epidemiology were provided with an important new instrument to assist them in their field investigations—the photofluorograph. Mass radiography made possible the examination of hundreds of thousands of people—in fact, whole communities—in a short period of time and at a reasonable cost. The experience of Davies and his co-workers in St. Louis County, Minnesota, demonstrated that over 90 per cent of the population of communities of fair size could be examined within a surprisingly short period. All open cases, clinical cases, and suspects were detected and later identified. Facilities were available for the isolation of open cases and the medical supervision of the subclinical cases and suspects. If the standards of living of the citizens of the community can be raised to a higher level and kept there, eradication for the first time becomes possible.

Such community studies have not been followed up for a long enough period of time to measure the various risks of different population groups in the community. Within the next few years following the war, it should be possible to answer some of the pressing questions regarding the natural history of the disease in the community. Certainly it has been demonstrated that rather complete community examinations are practicable and can become a precise tool in the study of the epidemiology of the disease as well as an important weapon in the fight against tuberculosis.

Now that the x-ray machine goes to the people, and examines them in large groups, it discovers tuberculosis in its minimal stage in a high proportion of the cases found. The importance of this finding in controlling the disease is made clear by the fact that in recent years only 10 to 15 per cent of admissions to tuberculosis hospitals have been minimal cases. Today, with new mass radiographic techniques, 65 to 70 per cent of all cases found have x-ray evidence of minimal disease. Tuberculosis is at last being found when it can be relatively easily arrested; even infectious cases can be detected earlier and prevented from spreading their disease.

Scientific accomplishments during wartime have clearly revealed the value of planned co-ordinated research in arriving speedily at the solution of trying problems in tuberculosis control. Strangely enough not the least repercussion of atomic fission is the stimulus it has given to group activ-

ity in research. Certainly this is true in the study of variations in the interpretations of x-ray films of the chest. Mass radiography brought in its wake some troubling problems in film interpretation. Studies of Morgan and his co-workers have demonstrated that various film techniques, 35 mm., 70 mm., 4 by 5, 14 by 17 paper, and finally 14 by 17 celluloid film, are equally efficient in detecting practically all of the significant pathologic conditions present on x-ray films of the chest. Group work is now going forward to determine the human error in the interpretation of chest x-ray films.

The ingenious technique developed by Yerushalmy for making comparative studies of various types of films read by several interpreters is worthy of further use in other fields of science and public health. It avoids the use of one film and one reader as standards because either of these may have considerable variation. If five readers use four different sized films (one to twenty positives plus all twenty negatives) twenty-one combinations are possible. Yerushalmy uses eleven positives out of twenty readings as a standard.

Prior to the widespread use of photofluorography in chest examinations, radiologists and chest specialists were firmly convinced that x-ray examination was one of the most precise laboratory tools at our disposal. The first comparative studies appeared and astonished all radiologists who formerly had assumed that roentgenological diagnosis was synonymous with high accuracy. The failure of an individual reader to be consistent with other readers presents a problem of considerable magnitude in the simple procedure of determining the presence or absence of a shadow "characteristic" of tuberculosis of the lungs. The variation of one person's separate interpretation of the same films at two different times, is even more astonishing. Discrepancies in the determination of activity and morphology of lesions among several expert interpreters were so great that the toss of a coin would have given about the same results.

Birkelo, Chamberlain and co-workers have demonstrated that the human error is great and that new techniques will have to be developed for the uniform detection of pulmonary lesions and that better classification will have to be devised to describe shadows on x-ray films. The variation in the determination of activity of tuberculous le-

sions on x-ray films is so great that in the modern clinics throughout the United States this differentiation is not made without careful laboratory, clinical, and serial x-ray examinations. All findings must be interpreted in their entirety by a competent clinician who considers subjective variations as well as objective findings. As these investigations in x-ray diagnosis go forward, still sharper tools will become available for the study of the meaning of various types of pulmonary lesions demonstrated on the x-ray film.

The error is of great moment in the epidemiology of tuberculosis, because the roentgenogram of the chest is the principal tool in diagnosis and follow-up of tuberculous persons. Great care must be exercised in making comparisons of epidemiological studies done by different investigators. Variations in results based solely on interpretations of x-ray films may be more apparent than real. For the present, if results are to be meaningful, comparative studies should include provision for interpretation of all chest films by two or more well-trained interpreters, with careful evaluation of their independent readings. Such self-examination in the complex field of roentgenography of the chest is essential if fundamental research is to contribute the additional knowledge that is so urgently needed.

Another subject which has attracted the attention of scientific investigators in the field of tuberculosis has been vaccination with the bacillus of Calmette and Guérin (BCG). Careful review of the extensive literature on this subject fails to reveal irrefutable epidemiologic evidence of the permanent effectiveness of this vaccine. Studies by competent workers in the Scandinavian countries and reports from the South American investigators demonstrate a relationship between vaccination and decreased incidence of the disease among children and some adults over limited periods of time. In the United States the relative abundance of sanatoria and low mortality rates in certain areas has minimized the need for an immunizing campaign. Furthermore, there has been a strong objection on the part of some of the tuberculosis clinicians in this country to infect children who may have the chance of going through life without ever becoming infected. The full effect of the vaccine on tuberculosis in human beings must wait until carefully controlled studies precisely measure a reduction in morbidity and mortality in various

age groups for long periods of time. Where there is inadequacy or complete absence of isolation, lack of personnel and facilities for control, and where persons, particularly children and susceptible racial groups, are subject to massive exposures to tuberculosis, with little likelihood of any change, BCG vaccination should be given immediate consideration. BCG vaccine, and possibly other similar vaccines being developed, would appear to hold more promise for the reduction and control of tuberculosis than streptomycin, even though the results of the latter in individual cases impress the public and the profession as more spectacular. The epidemiologist must still convince the clinician that prevention will contribute far more than treatment in the control of tuberculosis.

The brilliant discovery by Waksman in 1944 of the antibiotic, streptomycin, however, offers hope for suppressing pulmonary tuberculosis in human beings. It appears to have a definite but limited effect upon clinical progress of the disease; this includes retrogressive changes on the x-ray film, but only occasional changes from positive to negative sputum. Although the drug is too new to have permitted careful study of its effect over a long period of time, some interesting implications immediately become apparent. The use of this new antibiotic for advanced cases of tuberculosis is of limited value because of the irreversible pathological processes that have already taken place. In most sanatoria throughout the country, from 70 per cent to 90 per cent of first admissions have advanced disease. It is for this reason that Dr. Hinshaw of the Mayo Clinic estimates that not more than 10 per cent of patients now in sanatoria in this country would be likely to benefit by treatment with streptomycin, and then only if cases were carefully selected by experts in diseases of the chest. Yet for the first time, both children and adults with tuberculous meningitis have recovered. The Veterans Administration has treated over fifty cases with the remarkable record of one recovery out of every five cases. It is true that many of these had serious complications. The follow-up experience of these cases is awaited with interest. This contribution in meningitis is of great importance because of the case-fatality rate of almost 100 per cent before the use of streptomycin.

Among experimental animals it has been demonstrated that the use of streptomycin can cause

a tuberculin reactor to become a nonreactor. Similar experiences have not yet been reported in human beings. Excessive cost of the drug has prohibited its wide use up to the present time; furthermore, no adequately controlled studies of patients treated with streptomycin have been presented. Greatly expanded clinical and laboratory research is urgently needed.

Several questions about streptomycin merit consideration. Investigators find that after a four months' period of treatment with recommended doses of streptomycin, the sputum still contains virulent tubercle bacilli in a considerable number of patients with advanced tuberculosis, even though there is some clinical improvement and retrogression of tuberculous lesions on x-ray films. Patients who are still infectious may wish to leave the hospital because they feel better, although their disease is not arrested. In this instance, streptomycin plays the dubiously beneficial role of temporarily helping the individual but permanently harming the community by causing the spread of the disease to uninfected contacts. Furthermore, laboratory studies have shown that persons kept on treatment with streptomycin for even short periods of time, develop strains of tubercle bacilli that become resistant to streptomycin but still retain their virulence. The longer the patients are treated the more likely this is to occur. Epidemiologically, a dangerous situation could be created that would retard rather than hasten the control of this disease. The nonhospitalized infectious patient, whose disease is not arrested completely, would spread a streptomycin-resistant strain of tubercle bacilli capable of causing disease in susceptible contacts, who, upon entering the hospital for care, would not be amenable to streptomycin treatment because their tubercle bacilli would be already resistant to the drug. Careful study will have to be made of these factors before such a drug is used widely throughout the nation. Extensive use of any antibiotic in the treatment of a chronic disease like tuberculosis makes necessary plans for the substitution of new antibiotics when resistant strains become sufficiently prevalent in the affected groups of the population to restrict treatment possibilities. As Dr. Hart of England points out, there is, at present, insufficient evidence concerning the use of chemotherapeutic agents in tuberculosis to warrant any cessation of the successful campaign to provide more beds for

the isolation and treatment of persons with infectious and remediable disease. Actually, when a successful therapeutic agent emerges, as it undoubtedly will, additional personnel, beds and other facilities must be available for the most effective use of such an agent.

Laboratory examinations for tubercle bacilli are in somewhat the same untenable position in the United States today that serological tests for syphilis were at the beginning of the venereal disease control program over a decade ago. There is no general agreement of the most effective media for culture of tubercle bacilli in the routine or research laboratory. There is great diversity of opinion on the relative value of culture methods versus guinea pig inoculation in the identification of virulent organisms. Prolonged discussions are a common occurrence at meetings when professional men debate merits of the direct smear, the concentrated specimen, and the examination of gastric lavage in laboratory detection of tubercle bacilli. Recently the technique of pulmonary lavage has been popularly acclaimed, only to complicate the problem further. Yet no subject is of greater significance in the epidemiology of tuberculosis than the detection of virulent tubercle bacilli in persons suspected of or having the disease. Sputum examination is essential for exact diagnosis; prognosis rests largely on its accuracy; infectiousness is determined solely by the presence or absence of infecting organisms in bodily discharges. Much of our present knowledge of epidemiology has come from combined clinical and laboratory investigations. Without the results of laboratory tests, the clinician would find it difficult to diagnose accurately, predict realistically, and treat effectively a high proportion of his patients.

Too many persons have been labeled tuberculous on the basis of a single x-ray examination of the chest; laboratory diagnosis of tuberculosis has been too often neglected. The pathologist insists that he find tubercle bacilli before he can assign tuberculosis as the cause of disease. This is not always possible in office practice or in field investigations. Yet before final diagnosis every effort should be made to take careful histories, to perform tuberculin tests, to make repeated sputum or gastric lavage examinations, to repeat x-ray examinations. It is clear that scientific medicine cannot be practiced without laboratories

for the performance of scrupulous examinations for tubercle bacilli.

To determine the effect of sanatorium care or surgery on the natural history of tuberculosis in a given population group, high standards of laboratory diagnosis must be observed; otherwise such studies are likely to become a series of unassociated case histories. Many of the reports of the results of surgical treatment of tuberculosis of the lungs suffer from a paucity of evidence concerning reversion of positive to negative sputum because of lack of laboratory controls.

The easily performed procedure of pneumothorax is often initiated before tubercle bacilli are demonstrated in the pulmonary discharges or the pleural fluid. Epidemiology teaches us that all shadows on the x-ray film are not tuberculosis. All the wisdom and judgment of an experienced chest clinician must be utilized before interfering with the normal physiology of the respiratory system. The possible advantages of surgery must be carefully weighed against the dangers of interference with restoration of normal function by the body itself.

From the x-ray film alone even the experts cannot consistently distinguish the fibroid from the exudative type of pulmonary lesion. Prolonged study in a hospital by experts offers the only solution to this difficult diagnostic problem. Yet the truth is, there are not sufficient beds in the United States to hospitalize all the minimal cases now being discovered in increasing numbers by mass radiography of the adult population. Furthermore, there probably will not be enough beds for some time, in spite of concentrated efforts of powerful and influential agencies and citizens. What is to be done in the meantime? Supervise the minimal cases that cannot be labeled active clinically, and use the hospital beds for those minimal cases of uncertain or active status and for the more advanced infectious cases. The goal of a sound tuberculosis control program is to prevent spread of disease. Therefore we must make the best use of existing beds for known spreaders and known active cases, which will become spreaders. We must care also for all those who have suspicious x-ray lesions to prevent their breaking down. We must mobilize all resources at our command until we get sufficient beds or learn more about the relative benefits of ambulatory and bed treatment of all types of minimal cases.

The problem of proper disposition of a person with a minimal lesion requires further appraisal and research. Long-range studies of random groups of the tuberculous population with minimal disease are urgently needed. In the meantime, caution is required in hospitalizing every asymptomatic person with a minimal lesion, especially if known cases with infectious or remediable disease are awaiting admission to the sanatorium. At the same time, there must be close supervision of ambulatory persons with asymptomatic minimal lesions. Frequent repetition of x-ray and laboratory examination should be the rule. Abnormal pulmonary findings of any kind that appear on serial study, should be carefully scrutinized in the doctor's office or public clinic so that even the slightest signs may be studied for possible evidence of activity.

If such a practice is generally followed, chest physicians will gain in skill of diagnosis; limited hospital resources will be conserved for urgent cases; and epidemiology will assume added significance. Judgments based on positive and complete evidence will give a final verdict that preserves the health and productivity of the individual and at the same time protects the public health.

The unsolved problem of hospitalization of the tuberculous in this country poses many questions. In recent years over one-third of all deaths from pulmonary tuberculosis occurred outside of hospitals and institutions. There are many areas in the country which cannot find the means to provide hospital care for their tuberculous citizens. Recent studies of mortality in nine populous southern states reveal that from 55 to 77 per cent of deaths from tuberculosis occurred outside of institutions and sanatoria. The opportunity for spread of the infection from the family member who died at home to the family associates must have been tremendous, especially where poverty and overcrowding existed in areas of severe economic distress. Control of the disease will be impeded until a more realistic distribution of hospital facilities is accomplished. Tuberculosis does not respect state lines, color, race, or creed. The real value of case finding is measured by the number of infectious cases that are given isolation care and thereby prevented from spreading infection to others.

In any community, there are specific epidemiological data which must be analyzed and evaluated before a sound program of efficient bed utilization can be instituted and maintained. The morbidity and mortality rates are of great importance in determining the extent of the local problem. A knowledge of the quantity and availability of hospital beds, clinics, nursing, medical, social, and other professional services for the care and supervision of the tuberculous is equally important. The number and distribution of physicians trained in chest diseases constitute fundamental factors in the management of ambulatory cases and in economy of bed usage.

Such critical studies provide the answers to certain questions that leaders in tuberculosis control in every community must answer before they can develop and operate an effective hospital program.

1. What is the fundamental purpose of hospitalization of the tuberculous—isolation or treatment? The answer to the first question is unequivocal: the protection of the health of all the individuals in the community takes precedence over the health of any one individual. Of course, in the handling of individual patients, the physician must stress individual needs and the benefits derived from hospitalization by the person concerned.

2. Does the community, with a scarcity of beds, benefit more through the hospitalization of minimal cases with no symptoms or of advanced infectious cases? The answer to this question inevitably follows: the positive sputum case must be hospitalized to prevent spread of the disease; the earlier the case is found the better.

3. Should communities develop preventoria for children who are heavily exposed and certain to become infected, but do not yet have clinical disease? Study of family contacts has provided the answer to the third question: hospitalize the infectious adult source and thereby remove the danger of infecting children in the home. It is easier and more economical to hospitalize one parent than three or more children.

There is a known shortage of over 50,000 beds for the tuberculous in the United States in 1947. This condition appreciably affects the quantity and quality of care that can be given. It is not uncommon for a large area to have only 200 beds

and a register of more than 400 positive sputum advanced cases and over 1,000 with minimal disease.

How can the limited number of beds be used to greatest advantage? It is suggested that positive sputum cases be separated into two groups:

- (1) the positive sputum patient with remedial disease, and (2) the positive sputum patient who has little hope of recovery. Hospitalize first the remediable positive sputum group. In this way both isolation and treatment are accomplished. The irremediable positive sputum case might be isolated in a single room in a general hospital during the terminal episode. In the event that such arrangements are impracticable, the hopeless case must be cared for in the home under the best possible isolation technique, with home instruction and contact follow-up by public health nurses. Such a practice protects the community and provides the opportunity to restore the health of at least some whose disease is not yet beyond repair.

We must think of the community first and the individual next when hospital beds are limited. We must guard the health of all the known tuberculous in the community and not just the individuals who, often by chance, fall into the hands of the expert in chest diseases. Available beds should be used principally for the spreaders of tuberculosis whose lesions can be arrested, and for proved minimal cases with definite clinical or laboratory evidence of active disease. This is in accord with changing social views on illness. It is becoming more and more widely recognized that a tuberculous patient is not only a private patient under the care of a doctor but also a carrier of a disease in the community. Therefore, the physician has a certain public as well as private responsibility. The private physician must report all his tuberculous cases to the health department, so that the number and whereabouts of the cases will be known. If a patient does not return for supervision, the physician has the further responsibility of reporting this fact to the health department; so that the department can take immediate action and bring the patient under medical care and isolation. In this respect he is an agent of the health department and is an extremely important factor in the promotion of community health.

In spite of the increase in knowledge of the epidemiology of tuberculosis since the time of Pasteur and Koch, the principal question that remains unanswered is, "Why do some people develop tuberculosis and others fail to do so?" We have yet to determine the total and inter-related effect of time, intensity, frequency, and duration of exposure. We must evaluate the effects of unfavorable environmental conditions in the family, community, and geographical area. Such complex factors as sex, age, color, and many racial stocks with complex hereditary and constitutional attributes must be analyzed.

There are fields without number awaiting exploration. Many guideposts are unmistakably present, in the form of accurate and complete statistics on tuberculosis. Unfortunately, the number of scientific explorers is small. Each year the group of trained epidemiologists is further reduced to supply the need for public health administrators for state and local health departments. Indeed, a basic problem of epidemiology is that of recruiting and training an adequate body of capable investigators. Our only hope is for medical schools and general practice to provide some worthy candidates.

Many questions in the epidemiology of tuberculosis remain unsolved because of the lack of efficient tuberculosis record systems in otherwise effective health departments. Better records, and time for their analysis, could reduce the number of past mistakes and enable us to determine if what we have proposed and carried out has accomplished the desired end. In areas that have established tuberculosis control programs, case registers can be used both for case management and as current sources of valuable data for epidemiologic investigation. A perpetual inventory of the case load, with interval evaluation of the effectiveness of activities, in relation to their cost, provides a realistic appraisal of the extent of the problem. Smoothly functioning record systems are essential tools for successful administration of a tuberculosis program, and create the opportunity for the discovery of new knowledge and for improved methods of control. Carefully devised record systems make the practice of public health, as applied to tuberculosis, a science and not just empirical guesswork. Long-range planning, based on predictions derived from analysis of reliable epidemiologic data, promotes economy of program operation and definitive results.

Summary

Much could be learned about the epidemiology of tuberculosis if we could encourage the participation of more general practitioners in our field studies throughout the country. Although the general physician deals directly with the source material of tuberculosis, he infrequently recognizes the disease in its early stages, because he does not constantly search for it with the tools at his command. The routine use of the tuberculin test on every person who visits the rural doctor's office would uncover a surprising number of hidden and unsuspected cases of tuberculosis. The examination of family contacts and a search for the original spreader leads the family physician away from his relentless daily routine into exciting by-paths of epidemiologic investigations. Through the utilization of modern methods of diagnosis and follow-up, the rural physician extends the frontiers of knowledge in this puzzling disease.

In spite of the great amount of knowledge that still remains hidden from us, the study of epidemiology, as Chapin has aptly pointed out, has profoundly modified our methods of dealing with contagious diseases. The discovery of the cause of tuberculosis and some knowledge of its mode of spread are fundamental to an effective control program. As our knowledge increases it becomes the province of epidemiology to plan and try out new and more efficient methods of control. Knowledge includes more than morbidity and mortality statistics. The epidemiologist who studies the intricacies of the changing pattern of the spread of tuberculosis must be familiar with statistical methods in order to avoid losing his way in a maze of figures. As scientific investigations go forward, and as accurate and complete data accumulate, the best safeguards for sound inferences are: (1) proper selection of data; (2) judicious use of controls; and (3) the orderly array of facts in their proper relation to present information about the disease. Conclusions based upon such interpretations of data will be sound and should increase the efficiency of our methods of controlling tuberculosis.

The deadly quarrel between microbe and man will continue unabated unless we apply all the measures at our command to insure the protection of the whole population within a short

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THE MEEKER COUNTY TUBERCULOSIS CONTROL PROJECT

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EARLY in August, 1940, a telephone call was received from the Committee on Tuberculosis of the Minnesota State Medical Association requesting that a few of its members be permitted to meet with the physicians of Meeker County. A luncheon meeting was arranged on August 19, and we were informed that in February, 1940, the state committee had determined to recommend a statewide tuberculosis control program to be initiated and conducted by the State Medical Association. On March 26, 1940, this committee decided to select a county in which an ideal tuberculosis control program would be developed by local physicians and that this area would serve as a demonstration for the remaining eighty-six counties of the state. At subsequent meetings, numerous counties were considered, and on August first the members of the committee voted unanimously to ask the physicians of Meeker County to undertake the countywide proposed demonstration. This county was selected because:

1. The first tuberculosis survey among humans in Minnesota was conducted here by Dr. Lampson in 1912.
2. When the county area plan of controlling tuberculosis among cattle was undertaken by the State of Minnesota in 1923, Meeker County was selected for the beginning of this work. In other words, this was the testing ground for the state program.
3. The committee had determined that all physicians practicing in Meeker County had a modern viewpoint on tuberculosis control and would work in harmony on a countywide project.

After all of this was explained on August 19, our members agreed to give the project most careful consideration. In November, 1940, and for several months thereafter, the state committee held practically all of its regular meetings in Litchfield, our county seat, and the physicians of the county as well as a few from adjacent counties regularly attended these meetings. Presidents of the state association, including B. S. Adams and B. J. Branton, as well as members of the council, including Carl Johnson, E. J. Simons

and C. A. Stewart, were present on several occasions to assist in formulating our program. In these evening meetings, which often lasted for hours, various phases of the proposed project were discussed. Meetings were also held for the leaders of lay organizations and for the general public, in order that everyone might have an opportunity not only to know about the proposed project but also to offer suggestions for its execution. In the early spring of 1941 it appeared that the necessary preparations had been made, and the physicians were ready to proceed with the examinations the first of May. It had been agreed that the procedure should consist of testing the entire county population with tuberculin in order to find all who were infected with tubercle bacilli. This was to be followed by x-ray film inspection of the chests of reactors, and those with shadows indicating the presence of pulmonary disease were to be completely examined in order to ensure accurate diagnoses.

At first no funds were available to pay for materials or any phase of the work. However, it was not long before the Minnesota State Medical Association, the American Medical Association, the National Tuberculosis Association, the State Public Health Association and the local tuberculosis society contributed adequate funds. Our physicians agreed to administer the tuberculin test, interpret all x-ray films and do all necessary phases of the examination without charge. The State Department of Health agreed to furnish the tuberculin and to deliver it weekly in dilutions ready for administration. Our physicians decided to use x-ray films which were purchased and delivered to us by the state committee. From the same funds x-ray technicians were paid a small amount for exposing and developing the films and for purchasing necessary materials for keeping records, postage, et cetera. Every detail of the project was to be conducted by the citizens of Meeker County.

Saint Paul and Minneapolis newspapers gave wide publicity to the project, even publishing articles concerning it in Sunday editions. *Everybody's Health* supported and publicized the project in a wholehearted manner. Fine editorials

Dr. Danielson is chairman of the Meeker County project.

TUBERCULOSIS CONTROL PROJECT—DANIELSON

and articles were published in MINNESOTA MEDICINE. The Meeker County newspapers were exceedingly generous with space, urging everyone to co-operate. We received help from the pastors of various churches, superintendents of schools, and very substantial aid from the Farm Bureau. *Collier's* published an article with colored illustrations on May 2, 1942, entitled, "Worth More than a Cow." The Minnesota Public Health Association lent us motion picture films pertaining to tuberculosis which were shown in the rural district schools and at parent-teacher association meetings. At some of these sessions, talks were given by local physicians.

Postcards were prepared containing the following message: "You and your family are invited to come to your doctor's office for a tuberculin test, and if a reaction occurs, an x-ray film will be made of your chest for which there will be no charge. Signed: The Meeker County Medical Society." These cards were mailed at two-week intervals, first to the towns and villages and then one township at a time, until the entire county had been circularized. It was planned to follow up this volunteer program with one or two public health nurses arranging meetings in outlying districts and, if necessary, going from home to home.

With the declaration and prosecution of war, resulting in rationing of gasoline and restriction of travel because of rubber shortage, it became difficult for the farmers to respond to the invitation as they did before these restrictions were instituted.

Moreover, enlistment of physicians and nurses, the removal from the county of so many persons who were supporting the campaign, resulted in marked retardation of our tuberculosis activities. In fact, they came almost to a standstill for reasons beyond our control. The population, which was approximately 19,000 before the war, was reduced to slightly more than 16,000 by Selective Service and removal of defense workers. Efforts made to procure workers nearly always ended in failure.

Under the circumstances it seemed futile to continue the project as a demonstration. Therefore, it was closed when approximately two-thirds of the citizens had been examined. Most of the 10,733 persons who were examined reported early in the campaign. No objection was voiced at that time to the tuberculin test or any other phase of

the examination. The citizens were enthusiastic, and had it not been for the war, we believe that not less than 90 to 95 per cent of our citizens would have been examined.

Among the 10,733 who reported, 2,445 (22.8 per cent) reacted to tuberculin. Of the total number of tuberculin reactors, 2,031 reported for x-ray inspection of the chest. The failure of the remaining 414 was largely due to travel difficulties during the war. Among the 2,031 persons who reacted to tuberculin and had x-ray film inspection of the chest, there were sixteen who presented x-ray shadows that were definitely proved by other phases of the examination to represent clinical tuberculous lesions. Thirteen of the sixteen were sent to sanatoriums, and the remaining three were treated by private physicians.

Our physicians are greatly pleased with the results of this campaign, despite the fact that the project had to be discontinued after approximately two-thirds of our citizens had been examined. It resulted in the removal from society of sixteen active cases of the reinfection type of tuberculosis. Of great importance to us is the information obtained with reference to tuberculous infection. We know that only approximately 23 per cent of our citizens carry living tubercle bacilli in their bodies. In other words, the tuberculosis work previously done in Meeker County has been effective, since 77 per cent of our population have apparently been protected against tubercle bacilli. The present 23 per cent represent such a limited group of the population that it is possible to institute and maintain an intensive education campaign among them so that they may be on guard with reference to the subsequent development of clinical lesions. The 77 per cent of uninfected persons have been advised to be retested from time to time and, if infection occurs, to be periodically examined for clinical lesions.

There was so much publicity throughout the county concerning this project that there probably are few, if any, citizens who did not learn something about tuberculosis. Therefore, we are of the opinion that many of our citizens whom the project did not reach will request adequate examination for tuberculosis. Although the project as such has been discontinued, many persons, particularly since the end of the war, have requested special examinations for tuberculosis.

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TOXOPLASMOSIS

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TYPICAL toxoplasmosis occurring in a fourteen-year-old female resident of Minnesota was reported by Adams, Horns and Eklund¹ in 1946. Neutralizing antibodies for the toxoplasma organism were present in the blood of the patient as well as in that of the mother and in eight of nine siblings tested. The mother and siblings showed no clinical signs or symptoms of the disease by physical or roentgenologic examinations.

The first case of human infection with toxoplasma was reported in an infant in 1923 by Janku,³ who described the organism but did not identify it. The second case was reported in an infant by Torres in 1927. Wolf and Cowen¹⁰ in 1937 described another infantile infection, giving full clinical and pathological findings, and in 1939 Wolf, Cowen and Paige¹¹ described a similar case from which the toxoplasma organism was recovered by intracerebral inoculations of rabbits and mice with brain tissue taken at autopsy. Identity of this organism with a strain of toxoplasma isolated from laboratory animals was shown by cross-immunity tests, thus definitely establishing the etiological agent. Since 1940, cases of fatal toxoplasmic infections in adults^{4,5} and in children² as well as several nonfatal cases have been recorded.

The toxoplasma organism is regarded as a protozoan parasite and has at times been confused with other protozoan parasites such as Leishmania, Encephalitozoon and avian malaria. Identification is definitely determined by animal inoculation; however, the presence of characteristic organisms in the tissues is now generally considered diagnostic.

Although the parasites have more frequently been demonstrated in nerve tissue—meninges, cerebral cortex, basal ganglia, pons, medulla, spinal cord and retina—they have also been found in alveolar epithelium of the lung, myocardium, adrenals, reticuloendothelial and parenchymal cells of the liver, kidney, bone marrow, endothelium of arterioles and venules, skeletal muscle, skin and subcutaneous tissue.

Spontaneous infection in animals is widespread

and has been recorded in the dog, cat, rat, mouse, guinea pig, mole, sheep, baboon, chimpanzee and numerous kinds of birds. Instances of human infection have been observed in Australia, Europe, South America, and in several states of the United States of America. At present the routes of infection and other epidemiological factors are unknown.

Human toxoplasmic infections may present several types of clinical manifestation. Sabin⁹ has summarized six clinical forms. Callahan, Russel and Smith² in a recent comprehensive review of the disease described infantile and adult toxoplasmosis with subtypes of each.

The infantile form is frequently fatal, the disease being present at birth or appearing a few days or weeks thereafter. The outstanding signs and symptoms of these cases are internal hydrocephalus, convulsions, muscular twitchings, chorioretinitis, ocular palsies, spasticity, jaundice, intracerebral calcifications, hepatosplenomegaly and respiratory disturbances. Usually this type of infection is acquired *in utero*, and the mother has neutralizing antibodies for toxoplasma in her blood.

The juvenile form may or may not result fatally, and although it is most frequently of acute encephalitic form, it may exhibit predominantly the symptoms of acute exanthematic disease and/or atypical pneumonia. It is not always evident whether juvenile toxoplasmosis is the result of acquired infection or of a reactivation of latent intra-uterine infection.

Adult toxoplasmic infections have been observed in two main types. In one type, the clinical signs and symptoms are variable but in general are characterized by sudden onset, elevation of temperature, maculopapular eruption and pulmonary involvement. The signs and symptoms referable to the central nervous system may be relatively insignificant. There is more tendency for widespread involvement of the viscera than in the infantile disease.

The other type of adult infection appears as a chronic disease and may show no signs or symptoms of the process except that neutralizing anti-

From the Section of Medical Laboratories, Minnesota Department of Health, University Campus, Minneapolis, Minnesota.

bodies are present in the blood. This type of disease has been observed in mothers of infants dead of intra-uterine infection.

"Neutralizing antibodies against toxoplasma are formed by the host, and their demonstration is the most reliable method available for clinical

encephalitis; or from the parents and siblings of individuals who had previously shown a positive neutralization for toxoplasma. The series reported includes patients from public and private institutions as well as from general practice throughout the state.

TABLE I. RESULTS OF NEUTRALIZATION TESTS FOR TOXOPLASMA FOR THE YEARS 1944 TO 1946, INCLUSIVE

Year	Results of Examination						Totals	
	Positive		Negative		Unsatisfactory			
	Patients	Spec.	Patients	Spec.	Patients	Spec.	Patients	Spec.
1944	22	29	30	33	0	0	52	62
1945	46	56	184	196	2	2	232	254
1946	95	112	376	397	6	7	477	516
Totals	163	197	590	626	8	9	761	832

diagnosis of the disease."² Sabin⁶ has shown that, in monkeys, neutralizing antibodies for toxoplasma persists after the organisms are no longer demonstrable in the tissues, and that the presence of antibodies alone is not indicative of active infection; however, it does show that the individual has been exposed to the antigen substance of toxoplasma at some time.

The neutralizing antibodies are quite labile and may disappear in a day or two at room temperature, or in two weeks at ice box (5° C.) temperature. For this reason specimens of blood to be examined for toxoplasmic antibodies must be sent to the laboratory without delay. During warm weather, or at any time when more than twenty-four hours are required for the specimen to reach the laboratory, the serum should be separated from the cells and forwarded in a package containing dry ice (solid CO₂).

Because of the growing interest in these infections, the Minnesota Department of Health Laboratories began the neutralization tests* for the toxoplasma organisms in January of 1944, and have continued this service to date. The technique of the test is essentially that described by Sabin⁶ in which patients' blood serums are mixed with suspensions of the organism and inoculated into the skin of white rabbits.

The blood specimens usually were collected from individuals showing one or more of the following: chorioretinitis, convulsions, hydrocephalus, cerebral calcifications, mental retardation, and

In the years 1944 to 1946, inclusive, 832 specimens were examined from 761 patients who were residents of sixty-three Minnesota counties, and twenty-two other states. The results of the tests are summarized in Table I.

Sufficient data are not available to determine the exact number of active infections represented by the positive tests; however, the relatively high percentages—42.3 in 1944, 19.8 in 1945 and 18.4 in 1946—probably reflect the judicious choice of patients on clinical grounds rather than the overall incidence of toxoplasmic infection in Minnesota. A sufficient number of apparently normal individuals have not been examined as yet to determine the incidence in the population at large. Neutralizing antibodies were demonstrated in residents of twenty-five counties in the state, which indicates that the infection is widespread. Neutralizing antibodies were also demonstrated in residents of seventeen other states.

During the three years' experience, ninety-three pairs of serums from mother and child were tested, with the following results:

Mother positive—child positive	19
Mother positive—child negative	13
Mother negative—child positive	9
Mother negative—child negative	52

The results of the tests for mother and child agreed in seventy-one (76.3 per cent) pairs of the specimens. The combination "mother positive—child negative" occurred a little more frequently than the combination "mother negative—child positive." Conclusions relative to acquired infection

*The neutralization tests were originally conducted by Dr. Carl Eklund, whose present address is U.S.P.H.S., Rocky Mountain Laboratory, Hamilton, Montana.

versus intra-uterine infection are not apparent from these data.

Physicians who submitted blood specimens for the neutralization tests were asked to supply a short history for each patient. A part of this information is summarized in Table II.

febrile disease with extensive maculopapular rash involving nearly the entire body. A second type of adult infection appears as a chronic process and presents no signs or symptoms of the disease except for neutralizing antibodies in the blood.

TABLE II. ASSOCIATION OF CHORIORETINITIS, CONVULSIONS, HYDROCEPHALUS AND CEREBRAL CALCIFICATIONS WITH POSITIVE AND NEGATIVE NEUTRALIZATION TESTS FOR TOXOPLASMA

	Positive Neutralization				Negative Neutralization			
	Present	Absent	Not Stated	Total	Present	Absent	Not Stated	Total
Chorioretinitis	19	33	30	82	10	66	24	100
Convulsions	18	32	32	82	23	46	31	100
Hydrocephalus	7	37	38	82	16	51	33	100
Cerebral calcifications	4	36	42	82	1	64	35	100

In these groups of patients, chorioretinitis was associated with positive neutralization tests (23.2 per cent) more than twice as often as with negative neutralizations (10 per cent). The incidence of convulsion was about the same in the two groups, while hydrocephalus was associated with negative neutralization tests (16 per cent) more frequently than with positive neutralizations (8.5 per cent). The number of cerebral calcifications was probably too small to permit a valid comparison.

Summary

Toxoplasmosis is a disease resulting from infection with the protozoan parasite toxoplasma. Infection may occur *in utero* or be acquired at any age. Infantile toxoplasmosis is usually characterized by widespread destruction of the central nervous system, and, in surviving cases, residuals such as hydrocephalus, convulsions, chorioretinitis and mental retardation are frequent.

The symptoms of adult toxoplasmosis may be extremely variable, with a greater tendency to widespread involvement of the viscera than in infantile infections. It may occur as an acute

Toxoplasmic infections are probably widespread in Minnesota as indicated by the presence of neutralizing antibodies in the blood of individuals from twenty-five counties in the state.

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There is no doubt that the most important of all case-finding agencies in the fight against tuberculosis are its practicing physicians. It is almost always true that the family physician has the first opportunity not only to ascertain the presence of tuberculosis among the people, but also to give battle for the cure of the afflicted and to safeguard the other members of the family from the

tubercle bacillus. It is the family physician to whom most people go when troubled by signs of ill health.

The records in the chest diagnosis clinics prove that the physicians, if they are determined to do so, can perform a better job of suspecting and discovering active tuberculosis cases, year in and year out, than any other agency. Report of Comm. on Tbc. N. H. Med. Soc., *New England J. Med.*, Sept. 26, 1946.

TRICHINOSIS IN MINNESOTA

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SINCE 1913, when reporting of communicable diseases in Minnesota was made mandatory by legislation, there have been 157 cases of trichinosis with fourteen deaths reported to the Minnesota Department of Health. The largest number, forty-two cases and one death, was reported in 1934. In the ten-year period from 1937 to 1946, there were thirty-two cases with two deaths. The cases have occurred sporadically and in small family outbreaks and have been scattered throughout the entire state. The largest outbreak in Minnesota was in 1934, when twenty-three cases, including one death, occurred in one family and its relatives.

In a report of an outbreak of eighty-four cases in New York City in 1945, Shookhoff, Birnkrant and Greenberg⁸ reviewed outbreaks involving twenty or more cases reported in the literature since 1900, and found twenty-one such outbreaks ranging from twenty-one to 617 cases. Riley and Scheifley,⁹ in examining material from 117 cadavers from the dissecting room, found 17.9 per cent infected with trichinosis. Nolan and Bozicevich⁴ report that 174 (17.4 per cent) of diaphragms of 1,000 autopsy cases were found to be infested with trichinae. Evidently there are many subclinical cases and others that are not recognized clinically, and perhaps some that are not reported.

On January 29, 1947, the possibility of an outbreak of trichinosis was brought to the attention of the Minnesota Department of Health. On investigation, a total of thirty-seven clinical cases of trichinosis, with dates of onset of symptoms between January 10 and January 29, were disclosed. Thirty-three of the cases occurred in one community, a small village whose inhabitants are predominantly of Central European stock, accustomed to eating sausage frequently and often raw. Two cases occurred in Chicago and one each in Minneapolis and Saint Paul. There were twenty-three males and fourteen females affected, the ages ranging from fifteen to sixty years. Clinical histories were obtained in twenty-two of the thirty-seven cases, with symptoms as summarized.

From the Division of Epidemiology, Section of Preventable Diseases, Minnesota Department of Health, University of Minnesota campus.

	Number	Per Cent
Edema of eyelids	18	82
Muscle pain	18	82
Fever	12	55
Malaise	10	46
Diarrhea	8	36
Weakness	5	23

The usual incubation period is six or seven days, but may be as short as eighteen hours in heavy infections, or as long as twenty-eight days. The history of classical, initial diarrhea was obtained in only three cases, though eight individuals complained of diarrhea. The usual presenting symptoms were itching and redness of the eyes with edema of the lids, and muscle pains, especially of the extremities. Other frequent symptoms were fever, malaise, and weakness. Sore throat, edema of face, nausea and vomiting, abdominal cramps, pain in chest, and sweating were other complaints. Some of the individuals appeared critically ill and very toxic, but there were no fatalities, a situation which seems characteristic of larger-scale outbreaks in recent years.

Differential leukocyte counts obtained in twenty-three of the cases, January 30-31, 1947, showed an eosinophilia ranging from 7 to 49 per cent. In three of the cases there was a leukocytosis ranging from 12,450 to 20,000.

Eosinophil Count (per cent)	Number Cases
7 to 10	1
10 to 19	3
20 to 29	8
30 to 39	7
40 to 49	3

In two cases, *Trichinella spiralis* was demonstrated in muscle biopsies, one from a specimen submitted to the Section of Medical Laboratories, Minnesota Department of Health, and one reported from the Veterans Administration. Two pathological specimens reported by private physicians showed a concentration of eosinophils present in the muscle.

Of thirty cases in which an epidemiological history was obtained, all gave a history of having consumed smoked country sausage. In twenty-four of the cases the sausage was eaten raw, in two fried, and in four cases it was not determined whether the sausage was consumed raw or cooked. The two afflicted individuals in Chi-

cago had ordered the sausage by mail from relatives living in the community. The Minneapolis resident purchased sausage when passing through the village and shared it with the Saint Paulite. The sausage was prepared for public sale by a local butcher from trimmings of freshly slaughtered pork, ground, seasoned, and smoked for twenty-four hours at a temperature that would not cause the sausage to shrink. The sausage was then refrigerated at 36° F. for one week. According to the butcher, patrons were advised to eat the sausage only after cooking. Only pork from hogs purchased and slaughtered locally was used. As no record was kept on hogs slaughtered, and trimmings from several hogs were used in making approximately 100 pounds of sausage weekly, it was impossible to determine the origin of the pork used. No samples of the suspected sausage were available for laboratory examination.

According to Ober⁵ and Gould,¹ only 60 to 70 per cent of hogs slaughtered in this country are slaughtered in Federally inspected slaughter houses. The incidence of infection with live trichinae among hogs is estimated by Gould² as between 1 and 2 per cent. Under Federal inspection, no attempt is made to examine pork for the larvae of *Trichinella spiralis*, as the examination is considered time-consuming, expensive, and impractical. Therefore, all pork or pork products that are likely to be eaten raw are considered infectious, and according to Federal meat inspection regulation are processed either by heating to 137° F. or by storing for twenty days at a temperature of 5° F.⁷ In Minnesota, as well as most other states, this regulation does not apply to local butchers or abattoirs not engaged in interstate shipment of pork or pork products. Trichinous meat can be rendered non-infective either by heating to 55° C. or freezing at temperatures sustained long enough to kill the larvae.

Pork has been involved in all cases in Minnesota where a source of trichinosis has been suspected or found. Westphal⁹ reports a case of trichinosis in which the apparent source was bear meat from a bear killed in New York State. Westphal also cites a report of Geiger and Holmaier involving twenty-nine cases with three deaths occurring between 1930 and 1935 in California, due to eating bear meat. These authors maintained also the "possibility of the infection of rats, wild hogs, cats, foxes, coyotes, badgers

and ferrets." Hall³ states that two or three cases have been reported from eating beef, and one from dog meat, but he points out that these are not important in the control of trichinosis, which is essentially concerned with pork, "the customary source of trichinosis."

At present the prevention of trichinosis is the concern of the consumer. No fresh pork should be eaten "pink." When pork has been changed by cooking to a whitish color, it has reached a temperature of at least 137° F., which destroys the viable trichinae. The publication *The Control of Communicable Diseases*, published in 1945 by the American Public Health Association, recommends a temperature of 150° F. Pork products processed under Federal regulations are considered safe, but the consumer does not always know when such products actually have been processed at a Federally inspected plant. Therefore, the only safe rule for the consumer is to cook pork and pork products adequately.

Many measures have been advocated for the control of trichinosis. These measures are principally the following: (1) microscopic inspection of pork; (2) cooking of all garbage used for hog feeding; and (3) processing of all pork prior to sale to the consumer. Each method has its advocates and points to recommend it, and each method has its drawbacks.

Summary

An outbreak of trichinosis involving thirty-seven known clinical cases is reported in order to call the attention of physicians in this state to the fact that trichinosis is a serious problem and an ever-present threat to the public. Prevention of trichinosis is at present the concern of the consumer, and the only safe advice is to be sure that all pork is thoroughly cooked or adequately processed before consumption.

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DEAFNESS, A THERAPEUTIC PROBLEM

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WE maintain contact with our environment chiefly through two senses—vision and hearing. Many people lose one of these senses more or less completely, and occasionally some unfortunate individual loses both. Patients who lose their vision generally seem to make a satisfactory adjustment to their handicap and live on confidently and happily. On the other hand, people who lose their hearing are prone to become depressed, diffident, and uncertain. For this and other reasons deafness is a therapeutic problem of utmost importance.

Deafness may be divided roughly into three groups: The first group includes those cases which are due to mechanical interference with the vibrating parts (conduction deafness). The second group includes those which have suffered damage within the cochlea (nerve deafness). The third group includes miscellaneous intracranial conditions such as tumor, meningitis, certain rare bone diseases and probably also cerebral arteriosclerosis.

This discussion is concerned with the first two groups. These do not usually occur as separate entities, but are generally combined, with one type or the other predominating. Deafness from acute otitis media is an example, however, of pure mechanical deafness, whereas deafness from mumps furnishes an example of pure nerve deafness.

Middle ear or conduction deafness has a number of causes, prominent among which are acute and chronic otitis media, mastoiditis, pathologic changes of Eustachian tube and otosclerosis.

Acute otitis media interferes with vibration of the drum head and the ossicles because of swelling and exudation. It is usually self-limited and leaves no permanent hearing loss, unless neglected.

Chronic otitis media causes some deterioration of hearing as long as it exists and is prone to make permanent pathologic changes in the middle ear which cause permanent loss of hearing. These sequelae include thickening of the drum and epithelium, adhesions, retraction and perforation of the drum.

Chronic mastoiditis may be on a basis of osteitis, but is more often due to a cholesteotoma in the attic and antrum. There is continuous discharge with continuous low-grade inflammation which interferes with vibration of the drum and ossicles and eventually causes permanent changes in these structures.

Inflammatory changes and hypertrophies in the Eustachian tube or at its pharyngeal extremity, cause hearing loss by cutting off the middle ear from atmospheric pressure. The air pressure on both sides of the drum head must be equal in order to permit free vibration. Normally the pressure is equalized frequently through the Eustachian tube during swallowing and yawning. When the tube does not thus open, because of swelling, or for some other reason, a partial vacuum results in the middle ear together with some impairment of hearing. In children, this is often due to lymphoid hypertrophy at the pharyngeal end. Many adults have slit-like Eustachian openings in the pharynx instead of round ones. These people are prone to have ear discomfort and impaired hearing following marked changes in barometric pressure. A new type of ear disease related to the Eustachian tube has developed as a result of aviation and of submarine warfare known as *aero-otitis media* or *aerotitis*. It has been reported (Schilling¹) that 30 per cent of the men undergoing submarine escape training have aural difficulty leading to loss of auditory acuity.

Otosclerosis is an inherited disease of the bony capsule which surrounds the internal ear. It is thought to be harmless except for its mechanical effect. It causes an overgrowth of the bony margin of the oval window thus impinging upon the vibrating footplate of the stapes. When the footplate of the stapes becomes fixed and ceases to vibrate in response to the sound waves playing against the drum membrane, the hearing acuity becomes very seriously reduced (Fig. 1). The hearing organ otherwise may remain more or less normal, but it becomes separated from the vibrating portions of the ear mechanism by a wall of bone, so to speak.

¹Read before the Upper Mississippi Valley Medical Association, February, 1946.

Treatment.—The treatment of acute otitis media and the deafness incidental to it is largely preventive. If colds can be prevented, and when they occur, if they are treated by bed rest and isolation, otitis media ordinarily does not occur. When otitis media does occur, it can usually be cleared up fairly promptly with standard procedures such as dry wiping, instillation of antiseptic solutions, free drainage, diathermy, and, when necessary, bed rest, sulfonamides or penicillin. Reduction in hearing acuity may persist for a week or two after drainage ceases, but soon returns to normal without any permanent effects.

Chronic otitis media is not nearly as prevalent as it used to be because of the better care given to acute otitis media and upper respiratory infections in general. When it does occur, it is much more of a problem than the acute, but this also can usually be cleared up with or without surgery, and practical conversational hearing preserved. Any loss will depend upon the permanent pathologic changes in the middle ear. A generation ago, there was much enthusiasm about dividing adhesions in the middle ear resulting from chronic otitis media and freeing the malleus and drum by stretching adhesions. One does not hear much about this at present. Dividing adhesions whether in the ear or peritoneal cavity, is not highly successful.

Perforations in the pars tensa (sequelae of chronic otitis media) are more amenable to treatment. They can sometimes be induced to close up by gently cauterizing the margins and thus encouraging scar formation. These scars tend to contract and to close the hole. Patches placed over perforations are successful in two ways: They encourage closure of the opening by new tissue and at the same time make the patients hear better while the patch is worn. For instance, we have a young housewife as a patient at present, who has a large perforation in the left drum. We have been treating her by placing a patch cut from cigarette paper and soaked in glycerine over the perforation. She hears very much better as soon as this is in place. It must be renewed every two or three weeks.

The hearing is often improved, or at least conserved by radical mastoid operation if a chronic otitis or mastoiditis does not respond to more conservative treatment. This is especially true if the pathologic condition consists chiefly of a cholesteatoma in the antrum and if the middle ear is

reasonably intact. If, on the other hand, there is osteitis in the wall of the middle ear, then the middle ear and its contents must often be sacrificed to effect a cure of a dangerous infection, and the hearing may be further reduced.

There is another type of middle ear deafness which is connected with infantile or undeveloped mastoids. It is probably not essentially different from the chronic adhesive process which follows the healing of an extensively damaged middle ear. However, there is nothing abnormal to be found upon examination except reduced hearing and an infantile mastoid. The latter usually means that there has been otitis media in infancy. For this deafness, there is not much that can be done directly. But it is important to find children who suffer from this handicap through screening tests in school and to see that they get proper aids to hearing, such as special seating in the class room, special classes or even hearing instruments. Much good is being accomplished now by hearing tests in school and through the educational programs of such organizations as the American Hearing Society.

The success in treating a pathologic condition in the Eustachian tube depends upon its nature. If it is a true stenosis of the tube, treatment will probably accomplish nothing. On the other hand, as not infrequently happens, there may be hypertrophied lymphoid tissue in the cushion and pharyngeal orifice. This can be treated successfully by radium used in proper applicators or by deep x-ray therapy.

Aero-otitis media can be largely avoided by eliminating such young men from the air and submarine service who have slit-like Eustachian orifices and who develop ear discomfort under an increased atmospheric pressure of ten or eleven pounds. Those who cannot inflate the middle ears by holding the nose and mouth closed during attempted expiration, should also be eliminated.

Blast injuries may damage the drum and middle ear as well as the cochlea, but these will be discussed later.

The surgical treatment of otosclerosis is one of the encouraging bright spots in otology. It has been met by a wave of enthusiasm among otologists similar to that which swept the internists with the advent of insulin.

There is no other treatment than surgery which has been of any avail. Until the operation of fenestration was developed, these patients experienced a steadily progressive loss of hearing.

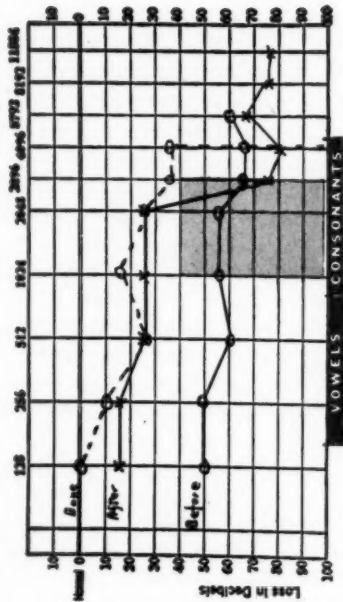


Fig. 2. Audiogram of one ear before and after successful operation in a case of otosclerosis. The dotted line represents hearing by bone conduction and the solid lines, by air conduction, before and after operation. The air conduction is better than before operation. The threshold of hearing is at about 30 decibels which brought her hearing to the level of old of practical hearing, and the result was excellent. The threshold for practical hearing is considered to be at about 30 decibel loss.

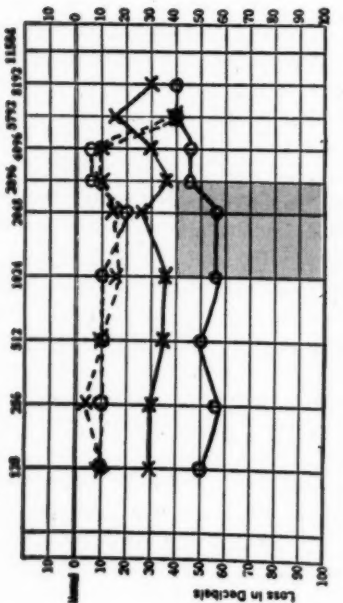


Fig. 1. Audiogram of a case of clinical otosclerosis. The solid lines show hearing by air conduction, and the dotted lines, hearing by bone conduction. The circles (o) indicate the right ear and crosses (x) indicate the left ear. If this patient were to have a fenestration performed, the right ear would be selected because this is her worse ear. The bone conduction remains good and the prognosis for serviceable hearing in this ear without a hearing aid would be good. Operation was not indicated, however, because the hearing of the left ear is already at this level of practical hearing, and the hearing acuity of the right ear might not exceed that of the left ear even after successful operation.

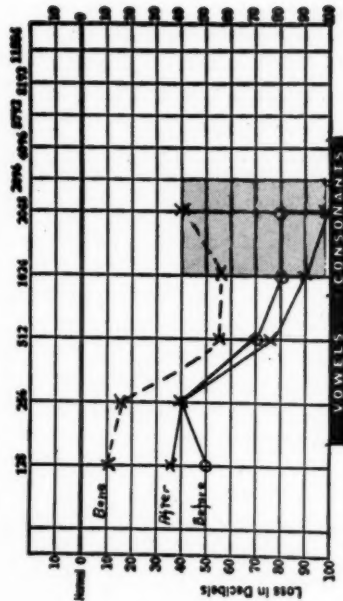


Fig. 4. Audiogram from an advanced case of otosclerosis before and after operation. The nerve degeneration as indicated by bone conduction was great. The patient was informed that the prognosis for serviceable hearing was very poor, but he wanted to "take a chance." There was no improvement.

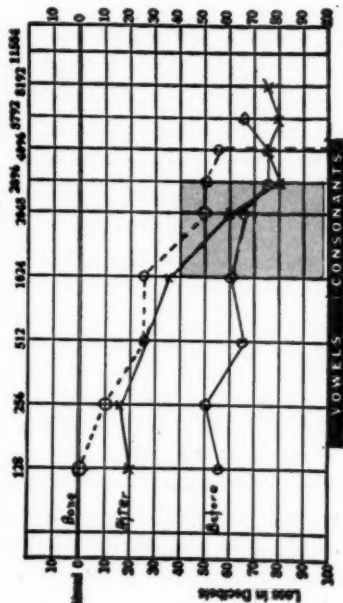


Fig. 3. Audiogram from an ear in which the bone conduction loss at the 2048 tone was considerable. This loss lay in the range of consonant sounds. The operation was successful in raising the hearing level by air up to or above the serviceable 30 decibel level in the tonal range below 2048 vibrations, but the patient still had some trouble in conversation because some of the consonant sounds were not heard on account of the loss of nerve function (bone conduction) in this high-pitched register.

The operation consists essentially in making a new artificial window to replace the one which has become ankylosed by the otosclerotic process. It is technically difficult and time-consuming, and the results are by no means perfect. Only a selected group is suitable for operation—about one-third of all the patients showing clinical otosclerosis—and of those operated, none regain normal hearing. Most are greatly improved, some are not improved and a few are made worse. Nevertheless, the results are most gratifying compared with the former hopeless outlook, and both the otologists and their patients are very enthusiastic. The patients whose hearing is restored to a practical level vary from 70 to 90 per cent of those operated upon. The percentage depends upon the care with which the cases are selected, and the boldness with which the surgeon undertakes to operate upon the less favorable cases.

Very briefly, omitting details, the operation is done as follows: The approach is made endaurally through the mastoid. The body of the mastoid is exenterated and the antrum and attic exposed to view. This brings into view the short process of the incus as it lies upon the bulge of the horizontal semicircular canal where the fenestrum is to be made. The posterior bony canal wall is largely removed, exposing the entire incus and the head of the malleus which must also be removed. The site of the horizontal semicircular canal is now well exposed but the canal itself is largely covered by bone and is brought clearly into view only after the latter has been removed by means of dental burrs used under magnification. The fenestrum is made at the anterior amputated end of the semicircular canal close to the facial nerve. The fenestrum and surrounding bone must be so prepared that the skin flap which is to cover it will heal down tightly and smoothly before the bone gets a chance to regenerate. Unless the fenestrum remains open the operation is of no avail.

A skin flap is made from the thin skin of the deepest portion of the external ear canal in such a way that it remains attached to the upper margin of the drum and yet completely covers the fenestrum with a generous margin to spare on all sides. The flap is packed smoothly over the fenestrum and held snugly in place. An epithelial membrane of that sort has a mysterious power of preventing bone growth, and, if the flap heals quickly into place, there is little or no regeneration of bone.

This operation of fenestration is not new. However, its successful execution is new. It had been tried many times in Vienna twenty or twenty-five years ago, as well as elsewhere in Europe, but it was not permanently successful because the opening in the bone healed up. Several futile devices, including metal plugs, have been used in attempts to prevent closure. Holmgren, of Stockholm, was one of the first who was really successful in procuring permanent results. For the operation as it now stands, we are, however, largely indebted to Lempert (Figs. 2, 3 and 4).

Nerve Deafness.—There are many types of pathologic changes in the cochlea which are all grouped under this term. The ordinary senile type of nerve deafness is the most common. A large percentage of all people in the latter half of life are afflicted by it. I do not mean to imply that it is a sign of senility—it often begins in the fourth decade of otherwise vigorous people—but use that term for want of a better one. The disease is characterized by tinnitus and reduced bone and air conduction, especially of the high tone frequencies. Reduction of bone conduction is due to the fact that the hearing organ itself is damaged, in contrast to conduction deafness in which there is some derangement of the mechanism for conducting sound vibrations to the internal ear. The pathologic change is found in the organ of Corti where the sense cells disappear and the afferent nerve fibers atrophy. The effect, as far as the patient is concerned, is the loss of consonant sounds which are high pitched tones carried by vibration frequencies in the upper register. With the consonant sounds lost from speech, it seems to the patient that everyone with whom he converses speaks indistinctly. He hears the sound of the voice without any difficulty, but cannot distinguish the words. He is apt to burst forth, especially if talking to some of his own family, "Stop mumbling and speak out so that a body can understand what you're saying." To the otologist he will complain that in a group he can understand only that part of the conversation which is spoken directly to him. He can easily "hear" everything that is said otherwise, but cannot distinguish the words.

A very similar type of deafness is caused by noisy occupations, such as boiler making, ship-building, and rock crushing. It is very difficult to study these things experimentally with any degree of satisfaction. Pathologic changes can

be produced readily in animals by subjecting them to loud continuous noise. But it is difficult to conceive of a method for determining the hearing loss. The changes, whatever they may be, are reversible up to a point, beyond which they become irreversible and the hearing loss is permanent. It is possible experimentally to produce temporary hearing loss and tinnitus in man under controlled conditions, but there is no way of determining the pathologic changes.

Blast injuries, such as those incident to war, may cause both middle ear damage and cochlear injury. An elderly Finnish gentleman came to me during the hunting season, stating that a hunting companion had shot at a deer over the patient's shoulder, and had hurt his ear terribly. Investigation revealed that the drum had been ruptured and badly lacerated. This does not usually happen with gun fire, but the internal ear may suffer damage from which it may or may not recover. Gunnery instructors may lose hearing acuity. Hearing acuity has been measured at varying intervals after exposure. Recovery takes place gradually after days, weeks, or months, depending upon the degree of injury and the individual's susceptibility to ear damage. The latter varies widely. If damage has been sufficiently severe, the process is not reversible, and hearing loss is permanent.

Toxic nerve deafness occurs following administration of various drugs and after certain infections. Quinine, salicylates and salol are examples of the former. Again, there are wide variations in susceptibility. Some individuals can take quinine in considerable dosage over long periods of time, whereas others cannot take small single doses without developing tinnitus.

Treatment.—The cause of the ordinary spontaneous senile nerve deafness is unknown. There is no known effective therapy. The hearing cannot be restored, nor can the progress of loss be stopped. Treatment is psychological and substitutional. The patient must accept his handicap and learn lip reading, or use a hearing aid. Treatment at present is a problem for teachers, psychologists, and producers of hearing aids, rather than for the otologist.

Occupational deafness is treated best by prevention. If it is impossible to reduce the noise in a factory, then those who are susceptible to noise should be screened out and urged to take other occupation. One individual may be able to work at a noisy job for years without injury to his hearing, while another may begin to lose hearing promptly. A shipyard worker of this type consulted me last summer. He was told, after examination, that he would suffer permanent damage to his hearing unless he quit his job. Since the shipyards were closing after sixty days, he elected to chance it that much longer. We have another patient at present who has been a telephone operator for twenty-four years. She has a marked loss of hearing which may be from her work. She is only a year from retirement and pension, and is, therefore, also loathe to quit.

The treatment of toxic nerve deafness is, of course, the removal of the cause. If damage by disease such as mumps or meningitis is sufficiently severe, deafness will be permanent.

Summary

Deafness is a health problem of first magnitude. That which is caused by infections can be very largely prevented by proper treatment of the infections. Sequelae of middle ear infection cannot always be successfully treated; however, much can be accomplished, especially in schools, in determining the presence of the handicap and giving the individual appropriate consideration in class work.

Otosclerosis is an inherited disease of unknown etiology. No cure is known. However, through the fenestration operation many victims can have hearing restored to a practical useful level and can be rehabilitated.

Nerve deafness of the usual type is a difficult problem. Cause and cure are both unknown. For the present, the patient must be satisfied with a hearing aid and lip reading. Occupational and toxic nerve deafness can be largely prevented.

Reference

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CLINICAL-PATHOLOGICAL CONFERENCE

INFLUENZAL MENINGITIS

Report of Five Cases

S. N. LITMAN, M.D., R. P. BUCKLEY, M.D., and A. H. WELLS, M.D.
Duluth, Minnesota

DR. A. H. WELLS: The remarkable effectiveness of streptomycin, particularly when supported by rabbit antiserum and sulfonamide therapy in the treatment of *Hemophilus influenzae* meningitis, and the desirability of certain laboratory controls over this therapy, make this a very appropriate and timely subject for our conference. There are five case studies of this disease from our two hospitals to be described.

Case Reports

DR. S. N. LITMAN: M.S., a two-year-old white girl, was first seen by me on the day she was admitted to the hospital, December 15, 1946. She had been having a head cold for several days, but she was not considered ill. On the night before admission, she became quite fretful and appeared to be running a fever. She was awakened at 2 A.M. by vomiting. This symptom was repeated several times during the night; and, on the following day when I first saw her, there was an associated fever reaching 105.2° F. She was distinctly listless and somewhat dehydrated. Her breathing was shallow and her pulse rapid. There was no rigidity of the neck or spine, and the cause of the fever was not apparent. She was given Hartman's solution and 5 per cent glucose, cold sponge baths, 10,000 units of penicillin every three hours, and aspirin, grains 2. A flat x-ray plate of the chest revealed slight increased markings consistent with bronchitis. The white blood cell count was 8,600 with 73 per cent neutrophils, 23 per cent lymphocytes, and 3 per cent monocytes. The hemoglobin was 11.1 grams and the red blood cell count 3,800,000. Her temperature fell to 100° F. and ranged up to 101° F., occasionally reaching 102° F. On the second hospital day, she was very listless and ground her teeth continuously. Again there were no positive signs of meningeal infection. However, on the third hospital day (December 17, 1946) there was definite neck rigidity as well as stiffness of the spine. An immediate spinal fluid examination revealed a cell count of 2,111 with 100 per cent neutrophils present, sugar 15 milligrams per cent, protein 55 milligrams per cent, and chlorides 750 milligrams per cent. Many Gram-negative bacilli morphologically and tinctorially typical of *H. influenzae* were found in the direct smears. Later cultures substantiated the organism identification. Two hundred milligrams of streptomycin were given intrathecally once daily and 225 milligrams were injected every three hours intramuscularly. She was also given

5 grains of sulfadiazine every four hours. The daily spinal taps remained positive for *H. influenzae* until a culture of the spinal fluid on February 21, 1947, was sterile. A total of 1,400 milligrams of streptomycin were given intrathecally and 12,600 milligrams intramuscularly. It was discontinued on the seventh hospital day. On February 20, 1947, the patient was given 10 c.c. of *Hemophilus influenzae* type B rabbit antiserum in 100 c.c. of normal saline intravenously. She had a severe chill, and her fever reached 105.2° F. There was also cyanosis for which 0.4 c.c. of adrenalin was given. The 10 c.c. of antiserum was repeated the following day without a reaction. The patient followed a turbulent course from marked stupor to severe restlessness, to a state of extreme negativism. Feeding was very difficult at times. However, the intake of fluids was maintained, and the child was given 250 c.c. of blood. The penicillin therapy was discontinued after four days, and the sulfadiazine was discontinued on February 29. It had reached a level of 10 to 21 milligrams per cent in the blood. Her rather low-grade fever returned to normal on February 20, and remained there. Her recovery was complete, and she had no residual symptoms some months after her illness.

DR. R. P. BUCKLEY: My first patient, W. M., was admitted to the hospital on June 16, 1946, and expired on June 19, 1946. This five-year-old boy had ridden in a car from Saint Paul to Duluth on the day before admission with his head constantly held out of the car window. He was ill that evening with a frontal headache and a temperature of 102° F. The following morning he had a sudden chill, and his fever reached 106° F. He was delirious and his neck muscles were stiff. He vomited twice and complained of headache over the forehead. The physical examination revealed a rigid neck and back muscles, cervical lymph adenopathy, a few râles in the bases of the lungs, and a positive Kernig's sign. Twenty-five cubic centimeters of spinal fluid were opalescent, and a cell count showed 1,121 neutrophils and 23 lymphocytes. The spinal fluid sugar was 90 milligrams per cent, protein 350 milligrams per cent and chlorides 806 milligrams per cent. A few Gram-negative bacilli were found in direct smears which were later proved culturally to be *H. influenzae*. He was given 50,000 units of penicillin immediately and 20,000 units every three hours, together with sulfadiazine, grains 15 immediately and grains 7.5 every four hours. As soon as the pleomorphic Gram-negative bacilli were found in the spinal fluid, 25,000 micrograms

From the Clinical-Pathological Conference of the Duluth Pediatric Society, Dr. E. E. Barrett, president.
Clerical Assistance by Miss Faith A. Gugler.

of streptomycin were given intrathecally and 125,000 micrograms were given every three hours intramuscularly. There followed a convulsion, cyanosis, and a fall in blood pressure to 82/60 following the intrathecal injection. No more streptomycin was available the following day (June 17). The patient was given H. influenzae type B rabbit antiserum in divided doses during this day, and the streptomycin therapy was resumed in the evening. On the third hospital day (June 18), he was given a blood transfusion. The spinal fluid contained H. influenzae, and there were 40 milligrams per cent sulfadiazine present. His temperature was ranging between 100° and 103° F. It fell off to 102° F. on June 19, and his spinal fluid became sterile. However, he expired rather suddenly and unexpectedly. The postmortem examination, performed by Dr. William Knoll, revealed a purulent exudate throughout the meninges and a small amount of clotted blood in the meninges at the base of the brain.

My second patient was not so ill fated. She, K.T., was an eleven-month-old infant who was admitted to St. Mary's Hospital on February 27, 1947, and was discharged on March 23, 1947, in good health. She had become ill on February 23 with a fever, some vomiting, and one loose stool. These symptoms persisted for two days when they disappeared except for some listlessness. On February 26 there was a temperature elevation of 103° F. She took very little liquid food during the day. On February 27 she was admitted to the hospital with a rectal temperature of 107° F., a moderately stiff neck, soft fontanels, rolling eyeballs, extreme dehydration, listlessness, and was obviously acutely and seriously ill. An immediate smear of the spinal fluid revealed typical pleomorphic Gram negative bacilli permitting the immediate use of 12,500 micrograms of streptomycin intrathecally and 1 gram every twenty-four hours in divided doses of approximately 125,000 micrograms per dose. The spinal fluid had a white blood cell count of 6,388 with 91 per cent neutrophils and 9 per cent lymphocytes, sugar 15 milligrams per cent, and chlorides 790 milligrams per cent. There was 75 per cent hemoglobin and a white blood cell count of 13,600 with 55 per cent neutrophils, 36 per cent lymphocytes, and 6 per cent monocytes. The infant was also given sulfadiazine, grains 7.5 every eight hours subcutaneously. Daily spinal fluid examinations revealed a rapid disappearance of the organisms and a return of the spinal fluid sugar to normal in six days. The severe fever had subsided on the second hospital day, after which it ranged from 99° to 103° F. for two weeks, following which it fell gradually to normal. The fever and the cell count in the spinal fluid both remained elevated during the administration of the streptomycin. There was, however, a gradual shift of the cells in the spinal fluid from a neutrophil preponderance to ultimately 90 per cent lymphocyte preponderance. The infant was sent home on March 23, almost a month after admission, without residuals.

Case Reports

DR. R. E. NUTTING: My three-and-a-half-year-old girl patient, P.L.P., was admitted to the hospital on November 21, 1946, and discharged as cured on De-

cember 18, 1946. She was apparently in good health until three days before admission when she developed a high fever, nausea, vomiting, apathy, and listlessness. On the day before admission her neck became stiff. The physical examination on admission revealed an acutely ill, well-nourished child with a stiff extended neck, who cried out whenever moved. There was opisthotonos, painful flexion of the rigid neck, congested throat, cold sores about the nose, and a painful bilateral positive Kernig's sign. The spinal fluid revealed 8,100 neutrophils and Gram-negative rods which on culture proved to be H. influenzae. There were 12.5 milligrams per cent sugar and 400 milligrams per cent protein in the spinal fluid. The infant was given 200 milligrams of streptomycin intrathecally and 2 grams intramuscularly in eight divided doses. She was also given penicillin, 30,000 units immediately and 20,000 units every three hours, as well as sulfadiazine, grains 20. The streptomycin was given daily intrathecally and intramuscularly until its discontinuance on November 28. The sulfadiazine was discontinued on December 3. The patient suffered from pains in her legs and feet and had a peculiar difficulty in holding her head up. There were shaky, jerky movements of the head which gradually subsided. Her temperature gradually rose during the first five days to 104.5° F. and then subsided during the following five days to 99.5° F. and remained normal after three weeks in the hospital. The spinal fluid became negative for H. influenzae on November 30, when the sugar was 40 milligrams per cent and the protein 45 milligrams per cent. There were no residuals at the time of discharge.

DR. C. H. SCHROEDER: My patient, T.A.B., a nine-month-old boy infant, was admitted to St. Luke's Hospital on January 21, 1947, and discharged "well" on February 2, 1947. This infant had been ill for about two weeks before admission. The principal symptoms were nausea and vomiting, associated with cough and rhinopharyngitis. Other children in the family had similar infections. I had seen him once at the residence about a week before admission. He had received some sulfadiazine before admission.

For some days before he came in, the mother had noticed pain and soreness in the muscles of the back and especially of the left shoulder. There also seemed to be pain in the legs, in fact, generalized tenderness on handling.

He was very listless on admission, held his legs flexed and abducted, while his hands clutched his head. The neck and back were extremely rigid and the Kernig strongly positive. The heart and lungs were negative. There was some diffuse tenderness of the abdominal wall but no rigidity. He was immediately placed on penicillin (20,000 units every three hours) and also was given sulfadiazine by mouth.

A lumbar puncture (January 21, 1947) showed a pressure of 270 millimeters of water. Queckenstedt test was negative. The fluid was just noticeably turbid. There were 248 red blood cells, 87 white blood cells, 62 per cent lymphocytes, and 38 per cent neutrophils. Sugar was 97.6 milligrams per cent and the protein 80.4 milligrams

per cent. A direct smear revealed numerous Gram-negative bacilli morphologically suggestive of *H. influenzae*. A culture was made. On January 22, he was given streptomycin intrathecally. The intended dose was 100 milligrams but through error 200 milligrams was given.

That evening the baby seemed a little brighter and was less rigid. Direct typing revealed typical capsular swelling with anti-*H. influenzae* type B rabbit typing serum. He was given a second intrathecal injection of 100 milligrams streptomycin. He was also given a small dose of influenza virus vaccine intradermally (0.1 c.c.). On January 23, the baby passed a good night and took feedings well. A lumbar puncture that morning showed a less turbid fluid. The pressure was not measured but apparently was lower. The white blood cell count of the spinal fluid was 309; the red blood cell count was 14; chlorides were 700 milligrams per cent. With some misgivings a third dose of streptomycin was given intrathecally. A couple of hours later the baby had a severe and almost fatal reaction. He became unresponsive, and the respirations became very slow and irregular. Oxygen was given and a small dose of coramine was injected subcutaneously. He did not improve and the respirations dropped to 6 or 8 per minute. At 3 P.M. artificial respiration had to be given. At 4 P.M. an attempt was made to pass an intrathecal catheter after a small dose of alpha lobeline was given. We did not succeed in passing the catheter, but the stimulation aroused the baby. He became more conscious, the respirations picked up, and thereafter he steadily improved. After this ordeal, it was noted that his skin presented a blotchy appearance and that a definite exophthalmos was present.

The following day (January 24) he was taking his feedings well and playing with a rattle. Opisthotonus was still marked and a peculiar chorea-like muscular activity was noted. No further intrathecal therapy was given but streptomycin was resumed intramuscularly, alternated with penicillin. This was continued for one week. The temperature became normal on the seventh hospital day, and the baby was discharged on the thirteenth day, perfectly well. To this date (April 5, 1947) he has remained well.

I would like to add that he owes his recovery to the painstaking and persistent efforts of Dr. R. A. MacDonald, intern. I feel that our intrathecal doses were somewhat too large and that the third one should not have been given. On January 24 no organisms were seen. The concentration test revealed 20 milligrams of streptomycin per cubic centimeter of spinal fluid.

Clinical Manifestations

Dr. R. P. BUCKLEY: Influenzal meningitis ranks among the first three causes of suppurative meningitis in children, the other two being meningococcus and pneumococcus meningitis. The clinical manifestations of *H. influenzae* meningitis do not differ significantly from the other types of suppurative meningitis, although there may be less evidence pointing to meningeal involvement. There are fulminating cases, fatal within forty-eight to seventy-two hours, and at the other extreme there are infections of very low grade nature lasting for weeks. These are frequently difficult to diagnose because of their

incipient nature. The condition is particularly difficult to recognize in infants under seven months since the meningeal signs frequently do not develop in this group until late. The disease tends to be seasonal, occurring in the first half of the winter,¹² mainly during November, December, and January. About 50 per cent of the cases of influenzal meningitis are associated with otitis media, and 10 per cent have an arthritis. Laryngotracheitis, pneumonia, and eighth nerve deafness⁸ have also been noted in association with influenzal infections.

Laboratory Aids

Dr. A. H. WELLS: Where other facilities are not available, the simple demonstration of a Gram-negative, delicate, small, pleomorphic bacillus is sufficient evidence to start streptomycin therapy. There are, however, additional laboratory procedures which are considered of the utmost importance by the best authorities.

1. The Gram-negative rods must be tinctorially and morphologically distinguished from pneumococcus, meningococcus, and streptococcus since the organism is pleomorphic and frequently occurs as a diplococcus. Good Gram stains are essential.

2. The immediate identification of *H. influenzae* type B is possible by the capsular swelling test with rabbit anti-influenzal serum mixed directly with the spinal fluid. This Neufeld-quelung reaction is identical with that for pneumococcus typing. Since the great majority of influenzal meningitis is due to type B of Pittman, the test is quite useful. The types A, C, D, E, and F are uncommon and specific antiserum therapy is not so efficacious as that for type B infection.

3. The specific soluble capsular substance can be demonstrated in the spinal fluid at the interface over one cubic centimeter of diagnostic anti-B serum.¹

4. The organism can be identified as *H. influenzae* by its growth requirements of hemoglobin.

5. The sensitivity to streptomycin of the strain of organisms isolated can be tested with varying concentrations of the drug, so that the concentration of streptomycin necessary to kill the organism can be determined. This generally runs from 1.2 to 12.5 units per cubic centimeter.

6. The spinal fluid levels of streptomycin during therapy can be determined and should be maintained between 25 and 130 units per cubic centimeter.⁴

7. Similarly the sensitivity of the strain of *H. influenzae* to sulfonamides,⁵ antisera type B, and even penicillin can be determined to advantage. Also, the titers of these antibiotics in blood or spinal fluid can be determined without much difficulty.

8. Blood cultures are positive in approximately 70 per cent of the cases.¹⁴

9. Daily spinal fluid studies for the organism, chemical analyses, and cellular reactions are considered essential to the proper therapy of this disease, whereas in meningococcal meningitis one spinal tap may prove adequate.

10. Alexander considers the determination of spinal fluid sugar of fundamental importance in the treatment.² She feels that this is an indicator of the severity of the infection and gauges the intensity of antiserum and antibiotic therapy by this test.

The daily spinal fluid tests should continue until the cultures are negative for several days and the sugar levels return to normal. One should be alert to the occasional complication of secondary invaders, especially *Staphylococcus aureus*, in the meninges and blood stream.¹⁴ The intrathecal streptomycin may result in an elevation of cell count and protein possibly as the result of irritation of the meninges due to this drug, and this pleocytosis may persist in spite of the disappearance of the bacteria.

Therapy

DR. S. N. LITMAN: It is interesting to review the effectiveness of various forms of therapy of influenzal meningitis advocated during the last decade. Without therapy, *H. influenzae* meningitis is considered from 92 to 100 per cent fatal in all age groups. Infants and younger children are particularly susceptible to the disease. Anti-influenzal horse serum was thought to reduce the mortality slightly. Alexander's rabbit serum proved to be the first of the more practical forms of therapy in that it reduced the mortality as much as 26 per cent.¹⁴ When the sulfonamides were introduced, there was another efficacious agent which when combined with rabbit antiserum reduced the mortality another 20 per cent.^{2,12} There are a few reports of the use of 10 milligrams of heparin intrathecally in cases resistant to therapy, on the theory that the fibrinous exudate may be partially dissolved, permitting entrance of the drugs. With the discovery of streptomycin, it was soon learned that this drug was the most efficacious of any thus far advocated for *H. influenzae* meningitis, reducing the mortality to approximately 20 per cent. Streptomycin alone in the case of average severity is considered adequate.^{1,2} However, in cases of greater severity the therapy should also include rabbit antiserum and sulfadiazine. Some strains of *H. influenzae* are sensitive to penicillin.² However, this antibiotic generally fails and is not to be considered unless the more efficacious forms of therapy are in use. Antiserum alone has been curative in seven out of eight cases.³

In the use of streptomycin, it is essential to use large initial doses to avoid producing a drug-resistant strain in an otherwise sensitive strain. An organism inhibited by 3.9 units of streptomycin can suddenly become resistant to 250 units per cubic centimeter if permitted to be exposed to nonlethal doses of the drug. For this reason a repeat of the laboratory test of sensitivity of the organism to streptomycin may be indicated on occasions in a

patient not responding properly. Alexander et al.^{1,2} used approximately 20,000 units per pound for twenty-four hours, given continuously intramuscularly in sodium chloride or interruptedly intermuscularly every three hours at 50,000 units or less per injection. A daily intrathecal dose of 25,000 to 50,000 units is considered necessary. Toxic reactions to streptomycin include erythema, urticaria, augmentation of meningeal signs, persistence of phlebotomy, local pain in injection, and mild shock on initial administration. As described above, two of our presented cases had rather severe shock reactions from which they recovered.

Summary

We have presented five cases of *Hemophilus influenzae* meningitis, in four of which there was recovery. In all cases streptomycin and sulfadiazine were used, and in some anti-influenzal type B rabbit serum and penicillin were used. It would seem that we now have a means of combating this disease which not so long ago represented one of the hopeless types of infection.

There is a brief discussion of clinical recognition, laboratory controls, and therapy.

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BABIES POISONED BY WELL WATER

Minnesota physicians are warned of the possibility of poisoning in young infants by nitrates in well water. Two cases of such poisoning have recently been reported to the Department of Health by physicians in western Minnesota.

In one case, a 14-day-old girl died after a two-day illness. The other case was that of a newborn infant who was in good health when discharged from the hospital but became very cyanotic ten days later. The physician stated that the findings in the case indicated a methemoglobinemia possibly due to the nitrate content of the well water used in preparing the baby's food. At the request of the doctor, the Health Department investigated the well and found that the water contained a high concentration of nitrate nitrogen.

The poisoned infants are described as being cyanotic and lethargic, and chemical analysis of their blood showed a markedly increased concentration of methemoglobin. The treatment given was a one-per-cent solution of methylene blue.

Poisoning caused by nitrates in well water seems most likely to occur if the water comes from shallow wells not properly located and constructed and therefore subject to contamination by products of organic decomposition. The Minnesota Department of Health wishes to determine the incidence of nitrate poisoning and the situations in which water of high nitrate content occurs. Any physician having a case in which poisoning from nitrates in well water appears likely may ask for a field investigation by the Health Department.

Case Report

CHRONIC ULCERS OF THE LEG ASSOCIATED WITH CONGENITAL HEMOLYTIC JAUNDICE

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THE occurrence of chronic ulceration of the legs complicating congenital hemolytic jaundice is still of sufficient rarity and interest to justify reporting. Taylor⁵ reported, in 1939, the first case of such an ulcer at the Presbyterian Hospital, New York, among forty-three patients suffering from this disease who had been carefully observed for a number of years. Meulengracht, in his careful study of thirty-four cases, makes no mention of it.

A specific relationship between these two conditions has not been generally recognized. Standard medical textbooks and special articles either make very little reference to the ulceration as a possible complication to the hemolytic jaundice or ignore it altogether. Thus Brenizer¹ in a presentation of six cases of the jaundice with a very thorough analysis and discussion of them, says of one of them merely, that the patient "had two ulcers of the left leg that healed after splenectomy."

Gänsslen² was one of the first to note this complication and its permanent recovery after splenectomy, although he claimed no priority in this, and most of the cases reported are from German or Scandinavian countries.

Taylor's report⁵ gives an excellent summary and he has found reports of "at least seventeen cases" with ulceration.

Since then I have found in the literature only one additional case. This was reported by Lowe⁴ who stated that the patient's past history disclosed an ulcer which required three months for healing, before the hemolytic jaundice was recognized. Krueger³ reported five cases of hemolytic jaundice with no ulcerations but in his comments recognized the rare occurrence of them and their resistance to all treatment until splenectomy is done.

The reasons for accepting a specific relationship rests on three grounds:

1. The ulcers are characteristic. They occur about the malleolar areas. They are usually single, though multiple ulcers are found in cases of long standing. Trauma may or may not be an etiological factor but they begin with a bluish discoloration which breaks down in the center forming eventually an ulcer 3 to 5 cm. in diameter with punched-out but not undermined edges; with a yellowish slough in the center and circumscribed by a zone of bluish cyanosis. There is usually much pain. They are indolent and respond very poorly to all the usual treatments for ulcers.

2. They are not found in other states of severe

anemia, secondary or primary, excepting in sickle cell anemia which, incidentally, bears some resemblance to that of hemolytic jaundice.

3. They heal with startling rapidity, and permanently, after the spleen is removed.

Case Report

Mrs. J. W., aged twenty-four, a housewife, was in the third month of her first pregnancy when I first saw her in March, 1944. The diagnosis of congenital hemolytic jaundice was suggested by her pallor and enlarged spleen; confirmed by her blood examination and history; and proved by her very complete recovery after splenectomy.

Family History.—Her mother and one brother have always been anemic. The mother has an enlarged spleen which has never been removed although she has been advised repeatedly to submit to this operation.

Past History.—This is irrelevant except that the patient has always been anemic and her spleen was found to be enlarged when she had pneumonia at the age of twelve. She has had spells of weakness, abdominal pain and slight jaundice which may have been mild attacks of hemoclastic crises. At these times, she thinks she has been helped by liver. Also she has had three bouts with indolent ulcers about her ankles. The first one came in 1937 over the internal malleolus of her left leg, as the result of scratching some mosquito bites. In spite of various treatments and surgical closure, this did not heal for eight months. In 1941 a similar ulcer occurred over the external malleolus of the same leg. This she attributed to the same cause, though similar scratches elsewhere healed without infection. With bed rest, elevation, and hot packs, this ulcer was made to heal in two months. In September, 1943, after a bicycle trip, the old area over the left internal malleolus broke down and a new one appeared over the external malleolus of the other leg. This did not heal for over three months. The patient had been urged frequently to submit to splenectomy but had always refused to do so.

Physical Findings.—These were essentially normal except as follows: The spleen was enlarged and extended 3 inches below the costal arch; it was firm and not tender. The liver was not enlarged. The sclera showed occasionally a slight tinge of yellow. There were scars on both ankles from the ulcers referred to.

Blood Findings.—Wassermann test, negative; Group IV; Rh positive; hemoglobin 9.8 gm.; red blood cells, 2,950,000; white blood cells, 14,800; differential count, polymorphonuclears 68, lymphocytes 20, monocytes 4, eosinophiles 8, microcytosis (spherical type) 4 plus (hyperchromic), polychromatophilia 2 plus, anisocytosis 1 plus.

The fragility test showed increased fragility: hemolysis began below .50 with complete hemolysis at .30; control hemolysis began at .44, with complete hemolysis at .34. Reticulocyte count was 4.1 per cent.

(Continued on Page 663)

Presented before the Southern Minnesota Medical Association, Manakto, Minnesota, September, 1946. Dr. Skinner received the SMMA bronze medal award for this contribution.

History of Medicine In Minnesota

NOTES ON THE HISTORY OF MEDICINE IN FILLMORE COUNTY PRIOR TO 1900

By NORA H. GUTHREY
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(Continued from May issue)

Luke Miller, who was to become a prominent pioneer physician and citizen in two communities of Fillmore County, Chatfield and Lanesboro, was born at Peterborough, New Hampshire, on August 18, 1815. Presumably his early education was obtained in Peterborough; in 1841 he was graduated from the University of Vermont, at Burlington, and in 1844 he received his medical degree from the Vermont Medical College, at Woodstock, Vermont.

Early displaying political acumen and ability, in the year of his graduation from medical school Dr. Miller was elected to the House of Representative from his native district and, postponing the beginning of his professional career, he served two years in the state legislature. On completion of this term, in 1847, he began the practice of medicine in the county of his birth. After ten years, in which he achieved a reputation as a good physician and surgeon, he moved to the Middle West and in 1857 settled in Chatfield. There, according to Andreas' *Historical Atlas of Minnesota* of 1874, "he soon found himself overrun with business, as a physician and surgeon, and he gave himself up to the demands of his profession," conducting his own practice and co-operating with his fellow physicians, among whom were Dr. Isaac S. Cole, Dr. Refine W. Twitchell, Dr. Nelson W. Allen and Dr. Augustus H. Trow.

Dr. Miller's professional interests extended beyond the actual care of the sick. Soon after his arrival in Chatfield he began lecturing on anatomy, physiology and hygiene to the students at the Chatfield Academy, an excellent institution which had been founded in 1856, and he presumably continued this work until the academy was superseded after a few years by the schools of the state.

In 1862, in Minnesota, the problem of institutional care for the insane first was considered officially, and in 1866, in Governor William R. Marshall's administration, legislation provided for a hospital for insane, which was established that year at St. Peter, at first in temporary, rented buildings. Of the board of trustees of six members, Dr. Luke Miller (listed as of Rushford) was one of the three who were appointed to serve six years. The *Preston Republican* of January 4, 1867, carried the following pertinent item:

Twenty-one lunatics, ten males and eleven females, passed through Rochester on Thursday of last week, says the *Post*, en route for the temporary State Asylum at St. Peter. They were closely guarded by several officers from this state, Dr. Miller of Chatfield and others, and were being removed from the Iowa State Asylum, where they have been temporarily kept during the last year.

And further, as regards his office as trustee, at the third semi-annual meeting of the Minnesota State Medical Society, held in Minneapolis on June 13 and 14, 1871, "Dr. Luke Miller of Lanesboro extended a cordial invitation to the society to visit the Insane Asylum at St. Peter, on the occasion of the next annual meeting. Accepted."

When the Fillmore County Medical Society was founded in 1866 (sometimes given 1862) "for mutual benefit, and particularly to increase the medical knowledge and skill of the members," Dr. Miller was a charter member and he thereafter was active in the organization. In 1868 his name appeared in the news of the society, to the effect that the president, Dr. R. W. Twitchell, would give an address at the regular annual meeting to be held at Preston on June 8 and that Dr. Luke Miller would give an essay "after the regular business of the society has been attended to." In 1869 he was one of the delegates to the annual meeting of the Minnesota State Medical Society.

Busy as he was professionally, Dr. Miller was not so engrossed that he could not become closely concerned with civic and political affairs. A man of such definite personality and ability could not avoid some degree of enmity, and his changing political affiliations made him a target for acrimonious comment, since, it has been said, he was a Democrat, a Republican, a member of the People's Party, and again a Republican in rapid succession. Shortly after his arrival in Chatfield, he was defeated, on the Democratic ticket, for the office of state senator, and also for membership on the local board of supervisors. In 1858 he was elected a trustee of the school board of Chatfield, to serve one term, and later, from 1860 to 1861 and from 1864 to 1867, inclusive, he again held the office. In the meantime, in 1860, he once more knew defeat, on the Republican ticket, in the village as candidate for the office of justice of the peace and in the state as senator. In 1861, however, still a Republican, he was elected state senator and so well did he fill the office that he was returned on three successive elections.

In the early period of the Civil War Dr. Miller's declaration that he was in favor of fighting until every Negro should be free, even if all whites were annihilated, drew down on his head the expressed wrath of the *Chatfield Democrat* (issue of September 21, 1861). During the war Dr. Miller served as medical examiner for the draft board. The *Preston Republican* of September 12, 1862, carried the following item:

Exemption: Dr. Miller, surgeon for the county, finished his labors Tuesday of last week and left the remainder of the applicants in the hands of Dr. Lafayette Redmon. We understand that a good many persons of foreign birth are still coming forward to make oath to the effect that they have never declared their intention of becoming citizens of the United States. No examinations to date.

Later he was appointed state agent to care for sick and wounded soldiers, a duty that he performed skillfully and kindly. In the issue of the *Republican* for June 17, 1864, it was stated that Dr. Miller was going south to visit the sick and wounded soldiers from Minnesota, and in August, 1864, there appeared further comment: Dr. Miller had been appointed by the Governor to go on this visit, he had had access to military hospitals, and had brought back with him, for the information and comfort of the soldiers' families, lists of the men he had seen.

With other public-spirited citizens of Fillmore County, Dr. Miller was influential in the building of the Root River and Southern Minnesota Railroad (later called the "Southern Minnesota"), between La Crosse, Wisconsin

sin, and St. Peter, Minnesota, originally planned to run through Chatfield, and for three years he held the office of treasurer and vice president of the road. Although the railway company first was incorporated in 1855, the work of construction proceeded slowly. In the chapter devoted to railroads in the History of Fillmore County of 1882 appears the sentence: "As to the last land grant from Congress in 1866, without which the road could not or would not have been extended west of Houston, perhaps the most credit should be given to Charles D. Sherwood, Dr. Luke Miller, C. G. Wykoff, and D. B. Sprague, who joined their fortunes with the enterprise at the reorganization in 1865. The village of Lanesboro, which originated in consequence of this railroad, was platted in 1868."

The founding of Lanesboro, a railroad enterprise of which Col. Thomas R. Brayton was agent, about forty miles west of the Mississippi River, perhaps represented a new challenge to Dr. Miller, for he moved to that village in 1869 and thereafter devoted himself to promoting the welfare and prosperity of the community. It seems probable, however, that his long-continued interest in the railroad, the fact that he was still serving as one of its officers, and his disappointment that Chatfield did not realize its hopes from the road, took him to Lanesboro. Possibly it was in anticipation of this change that Dr. Miller, in 1867 or earlier, established an office in Rushford (ten miles northeast of Lanesboro), which, until 1869, was the western terminus of the railroad; his name appears in the *Minnesota Railroad and River Guide* for 1867-1868, in the portion devoted to physicians of Rushford: "Luke Miller, South Side." Apparently a man of some substance financially, Dr. Miller was cashier of the Chatfield bank in the early sixties and was rated by a commercial agency, in 1872, as a good risk (the possessor of \$20,000 or more). In fact, a distinguished resident of the county, who was a young man when Dr. Miller was at the height of his career, has recalled that "Dr. Miller was doubtless a good physician and he certainly was a capable financier; in those times if one had a little money and knew how to handle it he could get along. The rate of interest then was 3 per cent a month." And the doctor knew how to handle his money, if the experience of a certain pioneer settler, a Maine Yankee, was typical, for this man once borrowed \$100 from Dr. Miller and, it has been said, "it cost him a yoke of steers and forty acres of good timber land before he got rid of the debt."

After his removal to Lanesboro Dr. Miller continued his activities for nearly twelve years. From time to time, in various connections, civic, social, political and professional, his name appeared in the newspapers and an occasional item has been preserved in histories of Fillmore County, as thus: "In August, 1877, Dr. D. F. Powell [he who was called by the Indians 'White Beaver'] was bitten by a rattlesnake at the Big Spring, two miles from Lanesboro. On his return, Dr. Luke Miller prescribed the formula which has kept in fashion so long as a panacea in such cases, *R. spiritus frumenti, ad lib.*, and the doctor recovered." Notes are found that at one time Dr. Miller served as village constable; as postmaster; as treasurer of the local order of Odd Fellows; that on the organization of the Old Settlers of the Southern Tier of Counties of the State of Minnesota, on October 21, 1878, he served on the program committee.

When Dr. Miller arrived in Chatfield in 1857, he was accompanied by his wife, Abbie D. Miller, of his own age, a native of Vermont, and their two children, Luke L. and Jennie A., both of whom were born in Vermont. Although Dr. Miller's year of birth has come down in various accounts as 1815, a census of 1857-1860, taken at Chatfield, listed both him and Mrs. Miller as forty-seven

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years old; the son Luke was eight years old and Jennie was four. Luke L. Miller, for many years, throughout his adult life, was a resident of Chatfield. Jennie A. Miller became the wife of Professor Gorman of St. Cloud.

Dr. Miller died in Lanesboro on July 12, 1881, and was buried with Masonic rites and honors. There follows an excerpt from an obituary included in the *History of Fillmore County* of 1882:

His final earthly home was at Lanesboro, but he belonged quite as much perhaps in Chatfield or in New Hampshire, the scene of his early triumphs, and in the county and state which he loved and served so well. He was an upright man, an officer above corruption and of good business qualities; and as a skilled surgeon and physician he had a wide reputation.

Russell Lucretius Moore was a native of northeastern Ohio, born at Montville, Geauga County, on December 31, 1843. When he was nine years old his parents moved with him to Michigan and soon after to Grant County, Wisconsin. In the graded schools of this community he completed his early education before entering the Platteville (Wisconsin) Academy. At the opening of the Civil War he enlisted in the Seventh Wisconsin Volunteer Regiment of Infantry, which was part of the well-known Iron Brigade of the Army of the Potomac, and served with it four years, until after the end of the war. He achieved the rank of adjutant. At the Battle of Spotsylvania Court House, on May 12, 1864, he received wounds that incapacitated him and confined him to a hospital in Philadelphia for four months.

On receiving his final discharge from the army, Russell Moore returned to Platteville and there began the study of medicine under the preceptorship of George W. Eastman, M.D., in preparation for entering Rush Medical College in Chicago. During this period, on October 7, 1867, he was married to Elizabeth Howdle; in 1869, immediately after receiving his degree from Rush, Dr. Moore brought his wife to the village of Forestville, in the township of that name in Fillmore County, where he began his professional life. His card appeared regularly in *Western Progress*, the newspaper of Spring Valley, and in the *Preston Republican*. In 1869 also, on June 23, Dr. Moore joined the Masonic Blue Lodge of Preston; he formerly had belonged to the Masons of Platteville. In February, 1871, he settled in Spring Valley and by December 25, 1872, his card announced him as physician, surgeon and obstetrician, "office and residence in brown house, Griswold's Addition, north of the depot."

It has been stressed that pioneer physicians, at all hours and in all seasons, faced the hazards of poor roads. Dr. Moore was one who sustained a serious accident in the course of a professional drive at midnight in June of 1870. On the narrow road that rounded the bluff just west of Forestville he met a team that crowded him off the edge so that he, his horses and vehicle rolled over and over down to the bottom of a steep incline, a distance of about twenty-five feet, all three receiving considerable damage. "Dr. Redmon" said the describing reporter "is attending his professional brother and says it will be some weeks before he will be able to resume practice."

Dr. Moore, from all records, was a well-trained, intelligent, conscientious physician who served his community in various professional capacities and who gave his patients the best medical and surgical treatment available and sought for better. That he was sued, in 1881, for malpractice, through malice, apparently, did him no great harm and it was announced pointedly, editorially in the *National Republican* of Preston in the following summer, that Dr. R. L. Moore of Spring Valley would not move to another field of usefulness as rumor had reported; that

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his practice was large and increasing; and that uterine surgery was one of his specialties in which he was well posted and reliable.

From January 6, 1870, to March 26, 1872, Dr. Moore was county coroner. He early became a member of the Fillmore County Medical Society (organized in 1866) and was its president when, in 1879, the group suspended activity, the officers holding over; in a record of 1882 Dr. Moore was mentioned as the last president of the society. It is interesting that in October, 1882, he called a meeting for the purpose of reviving the organization.

Soon after he arrived in Minnesota, Dr. Moore became a member of the Minnesota State Medical Society and the record of his work with the organization from 1870 to 1889, inclusive, is to his credit. He attended meetings regularly and he held office: for several terms, beginning in 1878, as corresponding secretary, and, in 1883, as third vice president; in this year also he was one of the delegates to the annual meeting of the American Medical Association. He served on many different committees, on some of them more than once: ethics, gynecology, medical education, practical medicine, obstetrics, surgery, the use and abuse of alcohol, diseases of the nervous system, diseases of children, epidemics, membership, orthopedic surgery, nominations for chairmen of sections, and medical jurisprudence (its chairman). The reports that he sent in reply to questionnaires from committees of the state society on the treatment of specified diseases or surgical conditions were concise and sound; and the occasional letters asking for advice and help that he wrote to men of special experience and knowledge were intelligent and modest. One worthy of note is that written in April, 1883, to A. Blitz, M.D., of Minneapolis, chairman of the Committee on Ophthalmology, for it concerns a field in which Dr. Moore had increasing interest:

In response to your circular I have the pleasure to say that as a country surgeon and physician I am quite often called to treat diseases of the eye. During the year last past I have not seen a single case of ophthalmia neo-natorum. I have seen a few cases in my field in other years past. It certainly is of rare occurrence in this locality. I look upon it as an aggravated form of purulent conjunctivitis. Am I right? I see a considerable number of catarrhal, purulent and granular conjunctivitis (trachoma). Next in frequency is iritis, and phlegmo-tenular conjunctivitis. Keratitis is seen almost as frequently as the last two. I try to make a correct diagnosis of each case as it presents itself. I try to treat each case properly. I try to see more than simply "sore eyes," for which the same unvarying nitrate of silver "eye water" is given, as is the manner of some "medicine men." What do you think of the treatment of some of these diseases by the "dry method?" I have found it of great benefit. A powder something like the following I have found very useful: Iodoform: Hydrang. chlor. Nictis; Sach Alba . . . equal parts. (Formula as printed in Transactions.)

Triturate long and well in a wedgewood mortar. Sift a little into the eye off a camel's hair brush two or three times a day. Perhaps you will smile at my idea of these things. I am aware that many specialists have a thought that the general practitioner knows but little or nothing of the diseases which fall into his special line, but from sheer necessity the said general man of all work, the "country doctor," often treats some of these cases with as fine results as are ever achieved by the specialist. In all our small towns and villages there are always people who cannot afford to go from home to consult gentlemen of your class. These people some of us *must* treat. We wish to do it well. Give us all the light you can upon these common diseases of the eye in your forthcoming report.

An ardent advocate of measures promoting sanitation and public health, Dr. Moore co-operated actively and faithfully with the State Board of Health, as a private physician and, in the middle eighties, as local health officer. It speaks well for him and for his townsmen that they gave him willing support in this work. Excerpts from his reports on diphtheria were used in the notes on medical

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history in Fillmore County which preceded the present series of biographical sketches.

In 1883, after the "Diploma Law" to regulate medical practice in the state was passed, Dr. Moore received license No. 149 (R) on October 13 and filed it in the county on October 19.

Not by inclination a politician, but evidently willing to serve the state as well as the community, Dr. Moore was a candidate for the state legislature, according to a county history, in 1875 and 1878. On a Republican ticket in a Democratic district, it was not surprising that he was defeated both times, first by a Democrat and next by a Greenbacker, and that he thereupon decided that he had had enough of politics.

After practicing in Spring Valley for twenty-nine years, in 1889 Dr. Moore moved to Lincoln, Nebraska; in the early or the middle nineties he returned, however, to devote the remainder of his active life to specialization in diseases of the eye and ear. He died in Spring Valley on August 13, 1902; his wife's death had occurred earlier; there were no children.

J. J. Morey (sometimes Morrey), an eclectic practitioner, is known to have been in Fillmore County from the late sixties into the early seventies, and it is likely that he practiced in the county over a longer period, beginning perhaps in the fifties.

In 1869, when eclecticism became established in Minnesota (the Minnesota State Eclectic Medical Society was organized on May 26; the Southern Minnesota Eclectic Medical Society on November 14), a small group of Fillmore County practitioners organized the Fillmore County Eclectic Medical Society, as has been described, and of this group J. J. Morey (Morrey) was a member and an officer. If Dr. Morey was a resident of Preston in 1869, he soon moved to Spring Valley where, early in 1870, he had become established in association with Dr. M. G. Pingree, with offices in the Rogers Drug Store. The partnership was short-lived, for in August, 1870, J. J. Morey, physician and surgeon, had settled in Etna, a village in the southeastern corner of Bloomfield Township, which adjoins Spring Valley Township on the south. Dr. Morey was still practicing in Etna in the spring of 1871.

W. (?) Morrison, an herb doctor, was early in Chatfield and vicinity, part of the time on a near-by farm south of town, part of the time, in the eighties, a resident of the village, in the "Durgan-Halloran" house. He is remembered as a contemporary of Dr. Augustus H. Trow ("Old Doc Trow"), who was in Chatfield from 1856 to 1887, inclusive. It is said that sometimes the two men were called on cases together, and that occasionally Dr. Morrison was summoned in the absence of Dr. Trow. One venerable citizen has recollected in detail the treatment, as it appeared to him, administered to him by Dr. Morrison for lung fever; namely, the giving of herb medicine "to draw the poison out of the lungs to the legs," and the care of the supposedly resultant lesions of those members by washing with more herb medicine; also of his curing Bright's disease when the patient, a young girl, had been given up by other physicians. Other senior residents of the village, however, have recalled Dr. Morrison with faint praise; "but none of them (medical practitioners) knew much in those days."

That for many years, however, this practitioner played a part in the life of the community, as a "doctor" and as a participant in civic affairs, notably at the proceeding at town meetings, is unquestioned. There is still quoted

with delight his retort to the village atheist, at an important civic gathering at which the location of the new Elmira town hall was to be decided. This atheist had been contending belligerently that the hall must be placed within the borders of the village of Chatfield rather than a mile or more north of the settlement as some of the Elmira farmers wished, and he declared loudly into Dr. Morrison's somewhat deaf ears his intention of leaving the community forever unless the new hall were placed according to his desire. Dr. Morrison inquired gently, "Where will you be going, sir?" which to his hearers savored of subtle humor as referring to destination in the hereafter.

On February 26, 1886, there died in Elmira Township, Olmsted County, in which part of the village of Chatfield lies, William Morrison, "doctor," married, native of New Hampshire, at the age of seventy-eight years.

In a business directory of 1896-1897 a Dr. W. A. Morrison was listed as in Chatfield. It appears likely that this entry referred to Dr. W. S. Morrison, of Fremont, Winona County, some fifteen miles to the northwest of Chatfield, who over a period of years maintained an office in Chatfield and practiced in the village two days a week, driving back and forth between the two towns.

(Because of his practice in Fillmore County and because through an apparent inadvertence, only a few lines about Dr. William Shaw Morrison appeared in the notes on medical history in Winona County that were published in MINNESOTA MEDICINE in 1940, a brief sketch of this interesting and well-qualified physician follows.)

William Shaw Morrison, although usually remembered as a pioneer physician of Winona County, where the greater part of his life was spent, is claimed by Fillmore County also as a practicing physician of the early days. So large and so far distant did his following become in Fillmore County that he found it well, as has been stated, because those were literally horse and buggy days, to maintain offices in Chatfield, a village of both Fillmore and Olmsted Counties.

William S. Morrison was born in Waddington, New York, in 1840, the son of The Reverend and Mrs. John Dow Morrison, both of whom were natives of Keith, Scotland; John Dow Morrison came to this country in 1838 to become pastor of the United Presbyterian Church of Waddington. There were three other children in the family: John, who became a physician of Winnipeg, Canada; James Dow, doctor of divinity and doctor of laws, Bishop of the Protestant Episcopal Church, with residence at Ogdensburg, New York; and Maria Jane, a teacher of piano in Waddington.

William Morrison received his early education in the schools of Waddington and later attended Huntington Academy, in Canada. His formal medical training he obtained at McGill University, Montreal, from which he was graduated in 1865. In the following two years he served an internship at the Montreal Hospital and began his practice of medicine in Waddington.

Some years previous to his graduation in medicine, a group of his father's parishioners had gone into the Middle West, to settle at Fremont, Winona County, Minnesota, and in 1867, when the community was in need of a physician, Dr. Morrison at the urging of these old friends joined the community, to devote his care and skill to them and to the settlers of a widespread surrounding territory. He drove from Waddington, New York, to a port on Lake Michigan, where he embarked for Milwaukee, Wisconsin, shipping his Morgan mare on the boat; from Milwaukee he drove to Fremont over almost impassable roads.

In 1884 Dr. Morrison opened an office in the village of Lewiston, Winona County, a few miles north of Fremont, and it is remembered well by residents of

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Chatfield, that over a considerable period in the eighties and nineties he had an office in that village and observed there a regular consulting schedule two days a week. But whatever the conditions of his medical practice, he always resided at his farm home a mile from Fremont. After the enactment of the "Diploma Law" of 1883 he practiced under an exemption certificate and was listed in the official register of physicians of the state as a member of the regular school of medicine.

Among the physicians of a later generation who remember Dr. Morrison well are Dr. Conrad A. Neumann, of Winona, and Dr. George B. Eusterman, of Rochester, both of whom were residents of Lewiston when Dr. Morrison was in his prime. Dr. Eusterman has described Dr. Morrison as a dark-complexioned, short, stocky man; energetic, vigorous to the point of being athletic; of fine personal and professional appearance; of a genuine, cordial kindness that won him friends and kept them; a man who during his sixty years of service to his neighbors and friends became a vital factor in the well-being and growth of his community.

In 1869 William S. Morrison was married to Margaret Ferguson of Fremont; Mrs. Morrison died in 1909. Of the marriage there were eight children, six boys and two girls. Two of the sons died in early childhood. When Dr. Morrison's death occurred in July, 1928, there were six living children: John, of Witoka; Kenneth Reid, of Minneapolis; James Dow, of Winona; William Shaw, of Evanston, Illinois, and Maria Morrison Henry and Harriet Morrison, both of Fremont; and one brother, The Right Reverend James Dow Morrison, of Ogdensburg, New York. In 1943 all of this group were living except Bishop Morrison, who had died in January, 1934.

William Shaw Morrison died at the age of eighty-eight years, after a life filled with service; although age forced him to retire from active practice a few years before his death, up to his last year many of his old patients still came to his home for advice and medical attention. Dr. Morrison was a life-long member of the Masonic Lodge of Lewiston. He was buried from the Scotch Presbyterian Church of Fremont with Masonic rites at the grave. The whole community mourned the passing of an able physician whose professional activities had spanned the years from 1867 to 1928.

(To be continued in the July issue)

President's Letter

THE ANNUAL MEETING

The acquisition of knowledge is accomplished only by great labor. It must be sought before it can be acquired and only individuals who are willing to exercise sufficient effort to gain knowledge can become the authors of new ideas. Often such ideas or discoveries possess an importance which it is impossible to exaggerate. However, unless and until such ideas are accepted and such discoveries are adopted, they can exercise small influence and can accomplish little benefit. Believing in this doctrine, the physicians of Minnesota hold a scientific meeting each year. This great traditional assemblage brings together the physicians of Minnesota and other states in order that they may continue their efforts to advance medical knowledge and medical science. Opportunity is provided for discussion which may eventuate in solution of certain of the perplexing problems of organized medicine and possibly in a more capable medical profession.

A high ideal has been maintained by the Committee on Scientific Assembly. An earnest attempt has been made to provide a program which will prove attractive and beneficial to members of the Association and its guests. The scientific program includes papers and lectures of superlative quality on important, vibrant topics. Those who will participate in the program are members of our own Association and well-known authorities from other states.

In addition to the general assembly, special sectional meetings will be held on the morning of each of the three convention days and on Monday and Tuesday afternoons. On Monday morning the Minnesota Academy of Ophthalmology and Otolaryngology is sponsoring a program, and in the afternoon there will be a special symposium on rheumatic fever. Tuesday morning features discussions on the subject of orthopedic surgery, and the American College of Chest Physicians meets on Tuesday afternoon. A special symposium on research problems is scheduled for Wednesday morning.

A program of demonstrations has been arranged for each intermission and immediately preceding and following each scientific session. These include gross pathologic specimens, presented by the Minnesota Society of Clinical Pathologists; roentgenologic diagnosis and interpretation by members of the Minnesota Radiological Society; obstetric manikin demonstrations, and, in addition, a demonstration on Rh blood-testing procedures and blood-compatibility testing in connection with one of the scientific exhibits. Other scientific exhibits will be provided by Association committees, hospitals, societies and governmental departments. These exhibits will provide information on the various services available and the progress which is being made.

Round-table luncheons have always provided an excellent opportunity for an exchange of ideas and opinions. This year they will occupy a prominent place in the program of the second and third days of the meeting.

The commercial exhibits will attract and deserve your attention; well-informed representatives will be present to discuss with physicians the latest developments in their particular fields.

Wednesday afternoon has been set aside for consideration of the problem of medical service in rural areas. Members of allied health organizations, social welfare workers, school authorities, representatives of farm, professional, and civic groups have been invited to this part of the meeting, and we hope that they as well as others interested in this problem will attend this informative portion of the program.

In these confusing years there is great need for the sort of opportunity which this annual meeting affords. As usual, the meeting will mark the climax of another year's work. Those who participate in the program have worked diligently and will present their reports, hoping that they may provide information which will be of assistance to other members of the profession. Every member of the Association is urged to participate in the deliberations of the meeting. Only by discussion can our experience be interpreted properly and a wide understanding of its application be attained.

Louis A. Buie

President, Minnesota State Medical Association

Editorial

CARL B. DRAKE, M.D., *Editor*; GEORGE EARL, M.D., HENRY L. ULRICH, M.D., *Associate Editors*

STATE MEETING

AS A STATE medical association we are acquiring age and dignity. This year's meeting in Duluth will be the ninety-fourth annual get-together, and according to the advance registrations will be a large gathering. The program which has been mailed to each member and which also appears in this issue speaks for itself.

The annual meeting of our state medical association serves as a real stimulus to the members of the profession of the state, not only to those who listen but perhaps more to those who present the scientific program. The meeting also affords an opportunity for everyone to talk shop in off hours, to meet others with common interests and to renew acquaintanceships. The out-of-state speakers who are recognized in their special fields serve to prevent too much provincialism in our scientific thought. That the medical profession appreciates the value of our annual meeting is shown by the yearly attendance.

Our Duluth hosts have arranged an informal entertainment for members and their wives for Monday night. The annual banquet Tuesday night will be addressed by Mr. Tom Collins of Kansas City, who has a reputation as an eminent speaker on public affairs, and by Dr. Louis A. Buie, president of our association.

Remember the date—Monday, June 30.

MINNESOTA MEDICAL SERVICE, INC.

OVER \$85,000 has been paid to Minnesota Medical Service, Inc. This is a sufficient amount to develop and carry on the Medical Service Program.

The Board of Directors decided at the last meeting held May 27, 1947, that no further contribution will be accepted after July 1, 1947, and that all members of the Minnesota State Medical Association who have not sent in their check by that date are honorably relieved of remitting their pledge.

Minnesota Medical Service, Inc., will have a booth at the state meeting in Duluth where all

information can be obtained. Acceptance agreements will be available whereby physicians agree to provide medical service according to contract.

A complete report of the progress of Minnesota Medical Service, Inc., will be given on Sunday, June 29, at the meeting of the House of Delegates.

THE BELL LECTURESHIP AND THE MINNEAPOLIS X-RAY SURVEY

THE Bell lecture by Dr. Herman E. Hilleboe was the opening gun which started the Minneapolis community-wide chest x-ray survey. Our lecturer was a distinguished Minnesotan who received his common school and medical education and much of his training in tuberculosis while in this state. That he came back to his home state to launch the first community-wide chest x-ray survey in any large city in the country, was especially appropriate. But the greatest import of the occasion was that from his comprehensive knowledge of the tuberculosis problem he was enabled to give unexcelled guidance to us, and to all who contemplate mass attacks against chest diseases.

He also brilliantly represented one of the chief participants in the Minneapolis survey, the United States Public Health Service. He was for some years the Director of Tuberculosis Services of this bureau, and is now the Assistant Surgeon General and Associate Chief of the Bureau.

Dr. Hilleboe's discussion of recent evaluations of the accuracy of roentgenographic diagnosis of chest plates will startle most doctors. It is evident from this study that chest films, both large and small, are after all only a part of the process of complete chest and heart diagnosis. One might best consider the filming process with the small film to be only a crude first sifting process. Only through this medium, however, can we separate from the general population that small percentage of individuals upon whom it is feasible to con-

Dr. Hilleboe's address, entitled "Community-Wide Chest X-Ray Surveys and the General Practitioner," appears in this issue.

centrate our clinical and laboratory efforts, including the use of larger x-ray film.

In a recent editorial on chest surveys in this Journal, there was a timely admonition that many cases in this smaller group will have healed tuberculosis and should not be subjected to active treatment. It might well have been said also that until the true seriousness of the lesion has been proven, intelligent and gentle handling of such apprehensive patients should be the aim of all of us. It is equally true that earliest diagnosis of lung tumors and early appraisal of activity and contagiousness of active tuberculosis cases, followed by active treatment and isolation, are of tremendous importance, both to the patient and to the public at large.

Dr. Hilleboe has attempted to answer one of the problems most disturbing to us who planned the Minneapolis survey, and that is the probability of swamping our excellent and up-to-this-time adequate county sanatorium facilities. Some of his suggestions as to selection of patients for sanatorium care have been planned and adopted by E. S. Mariette, Superintendent of Glen Lake Sanatorium. Increase of facilities, medical service, and nursing personnel await more adequate financing by the governmental units involved, and, at best, will not be available when first needed.

In view of the inability of the sanatorium to carry on its customary study of x-ray positive cases, much of this follow-up work will have to be done by the medical profession and outpatient clinics. Even many active cases will have to be treated by home care and home isolation until sanatorium shortages can be corrected.

Dr. Hilleboe has stressed the importance of tuberculin testing, sputum and gastric washing cultures of those who show lesions on the large film, suggesting active tuberculosis.

The Medical Technical Committee of the survey, in close co-operation with Dr. Hilbert Mark of the State Board of Health, Dr. Frank Hill, City Health Commissioner, and Dr. E. S. Mariette, Superintendent of Glen Lake Sanatorium, have planned for increased laboratory facilities to provide smears and cultures of sputum and gastric washings. Limited facilities for overnight hospitalization and gastric lavage at Glen Lake Sanatorium are offered by its management. All arrangements for gastric washings by the doctors of private patients can also be made by calling

the City Health Department tuberculosis control office.

The committee appeals to the profession for co-operation in reporting their findings and diagnoses, not only in tuberculous cases as required by law, but in all chest and heart lesions. These statistics will be of important scientific medical interest only if most reports are received.

The success of any chest survey depends to a great extent upon the percentage of the population that responds to the appeal to have a chest x-ray. The intelligent use of the latest laboratory procedures for diagnosis and determination of activity is also of great importance. However, most of us realize that gentleness, ability, and persistence of the doctor in handling patients, plus his clinical skill in interpreting symptoms, physical findings, and laboratory procedures, and, most of all, his diagnostic ability, are still the most important part of any x-ray chest survey. One could only wish that all of us might be possessed to some degree at least of these excellent qualities that were so often exhibited by our great teachers and physicians of the past generation—which qualities were so truly exemplified by Dr. J. W. Bell, in whose honor Dr. Hilleboe presented his momentous address.

CHARLES E. MERKERT, M.D.
Chairman, Medical Technical Committee,
Minneapolis Chest X-ray Survey

RESEARCH PROFESSORSHIP IN RHEUMATIC FEVER

THE American Legion of the State of Minnesota is embarking on a campaign which it has termed the "Minnesota Project." According to this plan, it is proposed to give aid to those who study heart disease and rheumatic fever of children.

A committee of prominent legionnaires has met with the dean of the medical school and the president of the University of Minnesota. Together they have formulated plans to establish at the University of Minnesota, a professional chair, the occupant of which will direct research in heart disease and rheumatic fever of children. To maintain this chair in perpetuity, as a memorial to veterans of World Wars I and II, the committee expects to secure a half million dollars from members of the American Legion of the State of Minnesota.

This undertaking deserves the support of the Minnesota State Medical Association. Every phy-

sician, with the knowledge which he possesses concerning rheumatic fever and its relationship to heart disease, can offer his services to Legion posts and can assist in stimulating the interest of legionnaires and other citizens in his community.

L.A.B.

MEDICAL ETHICS IN VETERANS PROGRAM

INSTANCES of unethical or questionable practices by physicians have recently come to light in connection with the Minnesota Veterans Medical Service program. These practices were the subject of discussion at a meeting May 14 of the Operating Committee of the Veterans Medical Service Division of the Minnesota State Medical Association.

Inasmuch as the veterans medical service program was inaugurated in this state to provide veterans with the same high quality medical care that private patients receive, it is indeed unfortunate when veterans are over-treated or carelessly treated. This practice of over-treating is making neurotics out of many veterans.

Cases have been found by the Committee where certain doctors have reported and claimed payment for medical care never rendered and have falsified records to show nonservice-connected disabilities as being service-connected.

The procedure of the Operating Committee in each instance of a breach or suspected breach of ethics is first of all to notify the physician by letter in order to give him a chance to clear himself. If this warning is ignored, the Committee then refers the case to the Councilor in the doctor's particular district. The Operating Committee has been given unlimited policing power by the Council of the State Medical Association.

The Committee recommends that doctors in treating veterans should conduct themselves at all times so that they will not in any way lay themselves open to criticism later. Reports submitted should always be complete, accurate and truthful. Upon this good faith depends the success of the entire program.

Honesty is one of the most important qualities of human character, and is an essential in a member of the medical profession. A strange quirk in human make-up lies in the fact that a man who is quite honest in other human relations will be as crooked as a dog's hind leg in dealing with his government. Honesty is a quality which is not limited in its application.

It is our humble opinion that medicine, and organized medicine in particular, has no place for crooks. In the interest of maintaining the fair name of our organization, members who are guilty of these dishonest practices as disclosed by our Operating Committee should be deprived of membership in their county societies.

CHRONIC ULCERS OF THE LEG

(Continued from Page 651)

This constituted a typical picture of congenital hemolytic jaundice.

Possibly pregnancy in such a case also is rare; at least I could find nothing on this subject in the medical literature. Apparently there is nothing more to be done than to be prepared for a hemoclastic crisis and remember that these patients do not take kindly to transfusions of whole blood. Accordingly, I carried this patient on expectantly, giving first the liver which she had been taking with no obvious benefit, and then stopping it, with no untoward results, but continuing the routine calcium and the vitamins. The pregnancy was uneventful.

Labor occurred on the two hundred and eighty-fifth day and was normal. There was no crisis or other complication and only a moderate perineal laceration, which healed without difficulty. The patient went home on the tenth day. She led a very active life with varying icterus but her red cell count continued under three million and her hemoglobin ran about 8 gm.

About March 1, 1945, she developed another ulcer, this time over the right external malleolus, from causes unknown. She treated it herself for three weeks before calling on me. By then the ulcer was 2 cm. in diameter, was punched out but the edges were not elevated or undermined. There was a yellowish gray base and a purplish surrounding areola. There was little discharge and little pain. My treatment was no more successful than that of my predecessors but I was more successful than they in persuading her to have the spleen removed.

This was done on May 11, 1945. The spleen was found to weigh 900 gm. Surgical recovery was excellent and the patient went home on the ninth day.

The response of the blood picture and ulcer was spectacular. From the day before the operation to that of her discharge, nine days later, the red blood cells jumped from 2,950,000 to 3,990,000, and the hemoglobin from 7.9 gm. to 12.7 gm. The ulcer, covered only with vasoline, took on a healthy appearance at once, was nearly healed at the end of her hospital stay and the last scab dropped off in less than a month.

The patient has enjoyed exuberant health ever since then, has had another baby (born August 26, 1946) and has had no trouble of any kind at the site of her ulcers.

Conclusions

Chronic ulcerations about the malleoli seem to bear a specific relationship to chronic hemolytic jaundice and are healed very rapidly and permanently by splenectomy.

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MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

COUNCIL APPROVES ADDITIONAL ORTHOPEDIC CLINICS

In order to provide more adequately for the 1,800 rural Minnesota indigent poliomyelitis patients who are known to need follow-up care, it has been found necessary to set up more orthopedic clinics in the state.

Dr. Edwin J. Simons, chief of the medical service unit of the Division of Social Welfare, has appeared before the Council of the Minnesota State Medical Association and has received its approval for holding four additional orthopedic clinics each spring and fall and permission to ask patients to come to the centers for follow-up examinations when necessary.

All of these clinics are held only with the approval of the local medical society of the particular district, and only those patients are seen at the clinic who are referred by their family physicians.

In a survey made some time ago, Dr. Simons reported, it was found that one out of 138 patients was able to pay. The Social Welfare division investigates each case, and those that are able to pay in whole or in part for their care, are asked to do so.

Physicians Request Clinics

In asking approval for the additional clinics, Dr. Simons said that physicians of the state in the different districts have asked for these clinics and the approval of the medical societies concerned will be secured before the clinics are held. Reporting plans for these additional clinics, Dr. Simons said that it is very desirable to have a clinic at Virginia because of the considerable number of polio cases on the Range; one at Fari-bault is in prospect in order to have some disposition in the southern part of the state. It is also expected to hold one in Cambridge and one in Thief River Falls, Dr. Simons said.

The Sister Kenny method has prolonged the follow-up care of polio patients, Dr. Simons re-

ported; where patients used to go to the hospitals during the entire period until they were discharged some months later, he said, they are now kept under physiotherapy for months and years, and the hospital costs are much higher.

In Dr. Simons' opinion, it is necessary to establish these additional clinics to solve this problem. Dr. Simons assures the medical profession that the work is being done in each instance for the improvement of medical practice. It is impossible to get enough physiotherapists, he says; therefore, it is necessary to ask patients to come to the centers. This involves less expense and less trouble; the National Foundation for Infantile Paralysis will help cover the cost.

COUNTY SOCIETY OFFICERS PLAN NATIONAL CONFERENCE

In an effort to make the American Medical Association the working partner of every individual physician, the AMA is planning a National Conference of County Medical Society Officers, to be held Sunday, June 8, at 2:30 p.m., in Hotel Traymore, Atlantic City, just prior to the opening of the AMA Centennial Convention.

Dr. B. O. Mork, Jr., of Worthington, secretary of the Southwestern Minnesota Medical Society, is a member of a special committee which was appointed to arrange for the conference.

This is the first conference of this type ever attempted, and it is hoped that a permanent organization may grow out of it, an organization through which it will be possible for all members of the medical profession to work more easily together in solving common problems and which will bring the AMA closer to every member.

It has been decided that this first conference should concentrate on local problems, that it should last three hours and that, insofar as possible, everyone present should have opportunity to find out just what goes on and how the facilities of medical organization—national, state and local—may be made available to the individual doctor.

Question and Answer Plan

The committee hit upon the workshop question and answer conference as the most effective type of program. According to preliminary plans, here is how the program has been set up:

On stage will be a panel of twelve persons familiar with subjects under consideration, to answer questions. Also available will be the officers and heads of the AMA's various departments. Questions will come from the floor in regard to any subject having to do with medical organization problems. All questions must be written and may be submitted before or during the meeting. Members of the committee will process the questions, and the moderator will designate the person or persons who can throw light upon the particular subject under discussion. To allow for discussion on a variety of subjects and answers on as many questions as possible, each speaker will be limited to three minutes for discussing the question put to him.

Suggested topics for discussion are professional relations, which includes such problems as the functions and duties of county society officers, hospital staff problems and the doctor in relation to specialty boards, postgraduate education and legislation; medical service, including prepayment plans, rural health, labor union programs, et cetera, and public relations, including relations between the doctor and the individual patient and the doctor and the general public.

PERSONAL DEBTS PERIL PATIENTS' BUDGETS

American consumers are going into debt twice as fast as in any other period in history, according to a recent bulletin from the Institute of Life Insurance. Goods are being bought on credit at an all-time record rate.

This is perhaps only natural, the bulletin notes, since people have waited a long time to buy some of the items that are just beginning to come back on the market since the end of the war.

However natural the trend is, it is well worth taking note of it. For the extent of the increased use of credit raises the question of whether some people may not be undermining their own well-being and financial security by going into debt too heavily in relation to their prospective income. It also points to the fact that budgets and paying abilities of each individual doctor's patients are being **STRETCHED TO THE BREAKING POINT!**

JUNE, 1947

Total Debt Nears 1929 Peak

At the end of 1946, the total personal debt in this country had reached an estimated high of 39.6 billion. That is only 1.1 billion from the peak of 40.7 billion in 1929, just before the crash came.

That means that this country is nearing a dangerous breaking point, that the time has come for caution in not extending credit too freely and not letting accounts slide. Laxity now in making collections may mean a loss of a good share of income. Physicians everywhere would do well to watch this trend closely for their own protection.

\$3,000,000 MAYO MEMORIAL VIRTUALLY ASSURED

If Minnesota residents will subscribe a final \$350,000 needed toward a total of \$3,000,000, the construction of an outstanding medical center at the University of Minnesota, dedicated to the memory of the late Drs. Will and Charles Mayo, will be assured.

Recent action by the State Legislature in granting an appropriation of \$750,000 practically assures the fact that a Mayo Memorial research center will materialize. Funds already raised include \$750,000 granted by the 1945 Legislature and \$1,162,000 subscribed by more than 3,000 corporations and individuals.

Plans for the memorial provide for a central 19-story tower unit. The building will be connected with the medical sciences building by a four-story extension, which will house the Mayo Memorial auditorium, with a seating capacity of six hundred.

The main building will also be connected with the students' health service, the outpatient department and Elliot and Todd sections of the hospital.

To Contain School of Public Health

According to an announcement by the Committee of Founders, the Mayo Memorial will contain the school of public health and the medical library, and enough hospital beds to help lighten the load on University Hospitals and to contribute to research and training.

The Committee of Founders, authorized by resolution of the 1943 Legislature, includes the following: James F. Bell, Earle Brown, Walter Burdick, Mrs. George Chase Christian, Frank T. Heffelfinger, Jay C. Hormel, Raymond J. Jul-

MEDICAL ECONOMICS

kowski, George W. Lawson, Ward Lucas, Leo D. Madden, Archbishop John Gregory Murray, Charles N. Orr, I. A. O'Shaughnessy, Mrs. Mabeth Hurd Paige, Dr. Edward L. Tuohy, Dr. Donald J. Cowling, chairman, and Dr. George Earl, secretary.

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

230 Lowry Medical Arts Building
Saint Paul, Minnesota

Julian F. Dubois, M.D., Secretary

LICENSE OF MINNEAPOLIS PHYSICIAN REVOKED FOLLOWING PLEA OF GUILTY TO MAN- SLAUGHTER CHARGE

Re State of Minnesota vs. Harry Gilbert, M.D.

On April 23, 1947, Harry Gilbert, M.D., forty-nine years of age, with offices at 547 Medical Arts Bldg., Minneapolis, entered a plea of guilty in the District Court of Hennepin County to an information charging him with the crime of manslaughter in the first degree. Dr. Gilbert was arrested on March 14, 1947, following the death of a twenty-two-year-old unmarried Minneapolis girl at a Minneapolis hospital. Dr. Gilbert had performed a criminal abortion on the decedent on March 4, 1947, for which he was paid the sum of \$300. The abortion was performed by the use of a catheter. The patient became critically ill but was not removed to a hospital until March 12, at which time the defendant had the patient admitted as a patient of his brother, Dr. Maurice Gilbert, 330 W. Broadway, Minneapolis. Neither the hospital nor the legal authorities were notified by the defendant or his brother. However, on the date of the decedent's death the Minneapolis Police Department was notified of the facts and the body was removed from a Minneapolis mortuary to the Hennepin County morgue where a post-mortem examination disclosed the true facts. Dr. Harry Gilbert was immediately arrested and signed a confession admitting the abortion on the decedent, and also admitting that he had performed numerous other criminal abortions.

The Hon. Levi M. Hall, Judge of the District Court, ordered the defendant to surrender his basic science certificate to the Basic Science Board for cancellation and his medical license to the State Board of Medical Examiners for permanent revocation. Dr. Gilbert surrendered both documents in open court, with a signed authorization for their cancellation and revocation, respectively, endorsed on the back of each instrument. Thereupon, Judge Hall sentenced the defendant to a term of not to exceed five years at hard labor in the State Prison, stayed the sentence and placed the defendant on probation for the same length of time. Judge Hall warned the defendant that notwithstanding the punishment of the permanent loss of his medical license and basic science certificate, that if there was any further violation of the laws of this State, the Court would make a further order revoking the stay of sentence and committing the defendant to the State Prison.

At the regular meeting of the Minnesota State Board

of Medical Examiners held on May 16, 1947, Dr. Gilbert's medical license was formally revoked. Dr. Gilbert's basic science certificate has been delivered to the Basic Science Board for cancellation by that Board.

MANKATO DENTIST AND ACCOMPLICE PLEAD GUILTY TO ABORTION CHARGE

Re State of Minnesota vs. W. A. Groebner

Re State of Minnesota vs. Raymond E. Older

On May 24, 1947, Dr. Willard A. Groebner, twenty-four years of age, licensed to practice dentistry in the State of Minnesota, entered a plea of guilty in the District Court of Blue Earth County, Minnesota, to an information charging him with the crime of abortion. Groebner, who maintained a dental office in the City of Mankato, was arrested on March 25, 1947, on a complaint issued in the Municipal Court of Mankato, charging him with the crime of abortion. The complaint charged Groebner with performing a criminal abortion on a twenty-four-year-old unmarried Fairmont girl on March 21, 1947. The patient died three days later after the attempted abortion. Groebner was arraigned in the Municipal Court at Mankato on March 27, 1947, at which time he demanded a preliminary hearing and was released on \$1500 bond. The preliminary hearing was continued to await a report from pathologists at the University of Minnesota. The report showed the cause of death to be "acute endometritis and hemorrhagic pneumonia due to an attempted induced abortion." On May 2, 1947, Groebner waived his preliminary hearing and was held to the District Court where he was arraigned on May 13 at which time he entered a plea of not guilty and the case was set for trial. However, on May 24, Groebner withdrew his plea of not guilty and entered a plea of guilty to an information charging him with the crime of abortion. Groebner was sentenced by the Hon. Harry A. Johnson, Judge of the District Court, to a term of not to exceed four years in the State Reformatory at St. Cloud, which sentence was suspended upon several conditions, one of which forbids Groebner to practice dentistry either in Mankato or North Mankato.

The Minnesota State Board of Dental Examiners has announced that proceedings are being instituted to require the defendant to show cause why his dental license should not be revoked. Groebner graduated from the School of Dentistry at the University of Minnesota, in 1944, and was licensed to practice the same year.

On June 2, 1947, Raymond E. Older, thirty-nine years of age, Granada, Minnesota, was sentenced by Judge Harry A. Johnson to a term of not to exceed three years in the State Reformatory, which sentence was suspended and the defendant placed on probation. Older had entered a plea of guilty on May 19, 1947, to an information charging him with the crime of abortion in the same case involving Groebner. Older admitted to the Court that he made the arrangements with Groebner for the criminal abortion and paid Groebner the sum of \$75.00. The patient became unconscious in Groebner's dental office and was removed by Older to a filling station at Granada where she was kept over night. The following day she was taken to a hospital at Fairmont where she died the next evening.

MINNESOTA STATE MEDICAL ASSOCIATION

Ninety-Fourth Annual Session

Duluth Armory, Duluth, Minnesota

June 30, July 1 and 2, 1947

ANNOUNCEMENTS

Sectional Program—This year's program is again divided into two sections to be conducted simultaneously in the St. Louis and Duluth Rooms, respectively. The St. Louis Room, where the general scientific assembly will convene each day, is located on the second floor of the Armory, and the Duluth Room, where special sectional meetings will be held, is off the main arena.

Scientific Cinema—Scientific motion pictures will be shown in the East arena before each morning and afternoon session, at the conclusion of the Monday and Tuesday sessions, and at each intermission. Provided by the courtesy of the Medical Film Guild, these films, developed under the guidance of outstanding authorities associated with medical schools or national medical societies, are authentic scientific reports on research which has been conducted for many years.

Luncheons—Twenty Round Table Discussion Luncheons have been arranged for Tuesday and Wednesday, July 1 and 2, at the Duluth, Spalding and Holland Hotels. Tickets must be purchased in advance. Lists of subjects and discussion leaders are printed in the programs, and reservation cards are being mailed out with the program. Attendance at each luncheon is limited to thirty; late comers are accommodated according to their choice if limits have not already been reached. Tickets are \$1.50.

Annual Banquet—The annual dinner for members, guests and wives, will be held at Hotel Duluth, Tuesday evening, July 1, at 7 p.m. Mr. Tom Collins, prominent Kansas City businessman and eminent speaker on public affairs, and Louis A. Buie, Rochester, President of the Minnesota State Medical Association, are speakers. Tickets are \$3.00.

"Variety Night"—All convention visitors and their wives will be guests of the State Association and the St. Louis County Medical Society at an informal party, 7:30 p.m., Monday, June 30, Hotel Duluth. There will be special music, entertainment and refreshments.

Guest Speakers—We are indebted to the following organizations for guest speakers at this meeting:

The Minnesota Society of Clinical Pathologists is inaugurating the *Arthur H. Sanford Lectureship in Pathology* at this year's meeting, to become a feature of all future annual meetings. Speaker, Elexious T. Bell, Professor of Pathology, University of Minnesota.

The Northern Minnesota Medical Association—Speaker, Robert E. Gross, who is Wm. E. Ladd Professor of Children's Surgery, Harvard Medical School and Surgeon in Chief, Children's Hospital, Boston.

The Minnesota Radiological Society—Speaker, Marcy L. Sussman, Director, Department of Roentgen Diagnosis, Mount Sinai Hospital, New York City, who will deliver the annual *Russell D. Carman Memorial Lecture in Radiology*.

The Northwestern Pediatrics Society—Speaker, Benjamin Spock, Section on Pediatrics, Mayo Clinic, Rochester.

The Minnesota Academy of Ophthalmology and Otolaryngology—Speakers, George E. Shambaugh, Jr., Assistant Professor of Otolaryngology, Northwestern University, Chicago; and Frederick A. Davis, Chairman, Department of Ophthalmology, University of Wisconsin, Madison.

The American College of Chest Physicians—Speaker, William Roemmich, S. A. Surgeon, United States Public Health Service, acting Tuberculosis Control Officer, Minneapolis Health Department.

The National Foundation for Infantile Paralysis, Inc.—Speaker, Joseph G. Molner, Medical Consultant, National Foundation for Infantile Paralysis, Wayne University, Detroit.

The Minnesota Department of Health—Obstetric Manikin Demonstrations by Willis E. Brown, Associate Professor of Obstetrics and Gynecology, University of Iowa Medical School, Iowa City; Ralph E. Campbell, Associate Professor of Obstetrics and Gynecology, University of Wisconsin Medical School, Madison; and Mancel T. Mitchell, Clinical Assistant Professor, Obstetrics and Gynecology, University of Minnesota Medical School.

Other visiting speakers at this meeting:

Benedict F. Massell, Associate Research Director, House of Good Samaritan, Boston.

Haven Emerson, School of Public Health, Columbia University, New York.

Roy H. Turner, Professor of Medicine, Tulane University, New Orleans, and Chairman, Committee on Diseases of the Liver, National Research Council.

Mrs. Charles W. Sewell, Administrative Director, American Farm Women's Division, American Farm Bureau Federation, Chicago.

Dean F. Smiley and Fred V. Hein, Ph.D., Consultants in Health and Physical Fitness, Bureau of Health Education, American Medical Association, Chicago.

Hiram E. Essex, Ph.D., and Alfonso Grafia, Mayo Clinic, Rochester.

Medical Women's Luncheon—The American Medical Women's Association, Minnesota Branch, will hold a luncheon meeting at the Kitchi Gammi Club, Duluth, Monday, June 30, at 12:15 p.m. All women physicians are invited. Make reservations in advance through Marie K. Bepko, Cloquet, Minnesota.

MINNESOTA STATE MEDICAL ASSOCIATION

Nu Sigma Nu Get-Together—On Monday, June 30, at 5:30 p.m. there will be a reunion of members of the Nu Sigma Nu fraternity at the Duluth Athletic Club for cocktails, dinner and a social evening. Notify Charles N. Hensel, 613 Lowry Medical Arts Building, St. Paul, if you plan to attend.

Minnesota Academy of Ophthalmology and Otolaryngology Luncheon—The Academy is holding a luncheon meeting at 12:30 p.m. Monday, June 30, at The Flame. Make reservations in advance through Archie Olson, 815 Medical Arts Building, Duluth.

American College of Chest Physicians Luncheon—Tuesday, July 1, at 12:30 p.m. chest physicians will hold a luncheon meeting in the Tally-ho Room, Hotel Holland. Reservations should be made with G. A. Hedberg, Nopeming Sanatorium, Nopeming.

Minnesota Surgical Society Luncheon—At 12:30 p.m. Tuesday, July 1, the Minnesota Surgical Society is having a luncheon meeting at The Flame. All members may attend if they make reservations in advance through M. G. Gillespie, 205 W. Second Street, Duluth.

Medical Veterans Meeting—All doctors who served in World War II are invited to a luncheon meeting at 12:30 p.m. Monday, June 30, in the Tally-ho Room of the Holland Hotel, sponsored by the Society of Medical Veterans in Duluth. Purpose of the meeting is to give returned medical officers opportunity to offer constructive criticism as to the way medical departments of the army and navy were administered during the war. It is hoped to prepare definite suggestions or recommendations for better utilization of medical resources in this country in the event of another national emergency.

Medal—The Southern Minnesota Medical Association will present its annual medal for the best scientific exhibit presented by an individual physician at this meeting. Presentation will be made at the banquet Tuesday evening, July 1, Hotel Duluth.

Fifty Club—This year's candidates for election to Minnesota's "Fifty Club" will be honor guests of the Association at the banquet. Presentation of lapel buttons and certificates to candidates who have practiced medicine for fifty years in Minnesota will be a feature of the banquet program.

Technical Exhibits—One of the largest technical exhibits in the history of the Minnesota State Medical Association meetings will be on display in the Armory Arena at Duluth. This exhibit plays an important part in the interest and value of every state meeting. Also, the revenue from sale of exhibit space makes possible the high quality of scientific program and events which characterizes our Minnesota meetings. Every convention visitor should make a special point of visiting the technical exhibits.

Woman's Auxiliary—Wives of physicians attending the meeting may secure programs of the business and social sessions of the Woman's Auxiliary at the Women's Registration Desk in the lobby of the Hotel Duluth. All visiting women are cordially invited to attend the special events arranged by hostesses of the St. Louis County Medical Auxiliary. Among these is a tea Monday, 3 p.m., at the home of Mrs. Anthony J. Bianco. The Annual Meeting and Luncheon to be held Tuesday, July 1, at Hotel Duluth are open to all Auxiliary members. Out-of-town members will be guests of the St. Louis County Medical Auxiliary at a Round-up Breakfast to be held Wednesday, July 2, at 10 a.m. at Hotel Duluth.

Golf—The annual Golf Tournament of the Minnesota State Medical Association will be held Sunday, June 29, at 1 p.m. at the Northland Country Club. All medical golfers are invited to enter competition for the attractive prizes that have been donated. Advance registration must be made through R. L. Nelson, Duluth.

Fishing—Deep sea fishing excursions along the North Shore of beautiful Lake Superior are being arranged by Karl E. Johnson, Duluth. All that is needed is appropriate fishing togs, no equipment or license necessary. Price is \$3.00 per person for a party of four or more. Reservations must be made in advance.

SPECIAL SESSIONS

In addition to the general sessions to be held on Monday, Tuesday and Wednesday in the St. Louis Room of the Armory, there will be five special sessions in the *Duluth Room*. These will be held during the morning of each of the three convention days and Monday and Tuesday afternoons, with a special conference on Rural Health on Wednesday afternoon in the St. Louis Room. Special sessions are open to all convention visitors. Details are given in the program listings.

Monday, June 30

- 9 a.m.—Minnesota Academy of Ophthalmology and Otolaryngology
- 2 p.m.—Symposium on Rheumatic Fever

Tuesday, July 1

- 9 a.m.—Special program on Orthopedic and Fracture Surgery
- 2 p.m.—American College of Chest Physicians

Wednesday, July 2

- 9 a.m.—Symposium on Research Problems
- 2 p.m.—"Rural Health—A Joint Responsibility," a special conference on the timely subject of rural health concludes the convention program. Nationally known authorities will discuss various phases of the local and national problem. Invited are members of allied health organizations, social welfare workers, school authorities and representatives from various farm, professional and civic groups.

MINNESOTA STATE MEDICAL ASSOCIATION

DEMONSTRATIONS

A program of demonstrations has been arranged for each intermission period and immediately preceding and following each general session on Monday, Tuesday and Wednesday, and to be held in Rooms D-1, D-2, D-3 and D-4 in the Armory Arena. A series of five *obstetric manikin demonstrations* will be held this year, arranged by the Committee on Maternal Health and sponsored by the Minnesota Department of Health. Three of these will be given in the Armory; two will be given at Hotel Duluth.

D-1 Obstetric Manikin Demonstration

1 p.m. and 5 p.m. Monday, June 30, by Willis E. Brown, Associate Professor of Obstetrics and Gynecology, University of Iowa.

5 p.m. Tuesday, July 1, Ralph E. Campbell, Associate Professor of Obstetrics and Gynecology, University of Wisconsin.

D-2 "Rh Blood Testing Procedures and Blood Compatibility Testing," given by D. R. Mathieson, daily, 8:30 and 10:15 a.m. and 3:15 and 5 p.m.,

sponsored by the Mayo Foundation and Mayo Clinic in connection with an extensive scientific exhibit, details of which are listed under Scientific Exhibits.

D-3 X-Ray Diagnosis and Interpretation

Sponsored by the Minnesota Radiological Society, daily at 8:30 and 10:15 a.m. and 3:15 and 5 p.m.

D-4 Gross Pathological Specimens

Sponsored by the Minnesota Society of Clinical Pathologists, to be held before each scientific session, at intermission periods and at the close of Monday and Tuesday sessions.

In addition, on Tuesday, July 1, Dr. Campbell will give an obstetric manikin demonstration at 12:15 p.m. in the Arrowhead Room, Hotel Duluth; and on Wednesday, July 2, Mancel T. Mitchell, Clinical Assistant Professor of Obstetrics and Gynecology, University of Minnesota, will give an obstetric demonstration at 12:15 p.m. in the Arrowhead Room, Hotel Duluth.

SCIENTIFIC PROGRAM

Monday, June 30

SECTION I—GENERAL SESSION

A.M.

- | | | |
|------|---|-----------------|
| 8:00 | Scientific Cinema..... | East Arena |
| | Visit Scientific and Technical Exhibits..... | Mezzanine Arena |
| 8:30 | Demonstrations—Rooms D-2, D-3 and D-4 | |
| 9:00 | <i>Hypertension</i> | St. Louis Room |
| | Classification of Hypertension—Howard Kaliher, Pelican Rapids | |
| | Medical Treatment—William D. Coventry, Duluth | |
| | Surgical Treatment—Harold F. Buchstein, Minneapolis | |

10:15

Intermission

- | | | |
|-------|--|-----------------|
| | Scientific Cinema..... | East Arena |
| | Visit Scientific and Technical Exhibits..... | Mezzanine Arena |
| | Demonstrations—Rooms D-2, D-3 and D-4 | |
| 11:00 | <i>Management of Heart Disease</i> | St. Louis Room |
| | Treatment of Congestive Heart Failure—Ben Sommers, St. Paul | |
| | Diagnosis and Treatment of Cardiac Emergencies—Wilburn O. B. Nelson, Fergus Falls | |
| | Recent Advances in the Treatment of Cardiovascular Diseases—Charles Naumann McCloud, Jr., St. Paul | |
| 11:30 | <i>Surgery for Congenital Cardiovascular Diseases</i> —Robert E. Gross, Chief of Surgery, Children's Hospital, and Wm. E. Ladd Professor of Children's Surgery, Harvard Medical School, Boston | |

P.M.

Afternoon

- | | | |
|------|---|-----------------|
| 1:00 | Scientific Cinema..... | East Arena |
| | Visit Scientific and Technical Exhibits..... | Mezzanine Arena |
| | Obstetric Manikin Demonstration—Room D-1 | |
| | Willis E. Brown, Associate Professor of Obstetrics and Gynecology, University of Iowa, Iowa City | |
| 2:00 | <i>Gastrointestinal Ulcerative Disease</i> | St. Louis Room |
| | Medical Therapy in Ulcerative Colitis—Paul G. Boman, Duluth | |
| | Medical Therapy in Peptic Ulcer—J. Allen Wilson, St. Paul | |
| | Vagotomy in Peptic Ulcer—Waltman Walters, Rochester | |
| 2:45 | <i>Fenestration Operation for Otosclerosis</i> —George E. Shambaugh, Jr., Assistant Professor of Otolaryngology, Northwestern University, Chicago | |

MINNESOTA STATE MEDICAL ASSOCIATION

- 3:15 *Intermission*
 Scientific Cinema.....East Arena
 Visit Scientific and Technical Exhibits.....Mezzanine Arena
 Demonstrations—Rooms D-2, D-3 and D-4
- 4:00 *Russell D. Carman Memorial Lecture*.....St. Louis Room
 A Physiologic Approach to Cardiovascular Roentgenology—Marcy L. Sussman,
 Director, Department of Roentgen Diagnosis, Mount Sinai Hospital, New York
 City
 Presentation of Speaker by Robert E. Fricke, Rochester, President, Minnesota
 Radiological Society
- 5:00 Scientific Cinema.....East Arena
 Visit Scientific and Technical Exhibits.....Mezzanine Arena
 Demonstrations—Rooms D-1, D-2, D-3 and D-4
- 7:30 "Variety Night".....Ballroom, Hotel Duluth
 All convention visitors and wives will be guests of the Minnesota State Medical
 Association and the St. Louis County Medical Society for an evening of music and
 special entertainment, Monday, at 7:30 p.m. Refreshments will be served throughout
 the evening in the Arrowhead Room. Everybody is invited.

Monday, June 30

SECTION II—SPECIAL SESSION

A.M.

- 9:00 *Minnesota Academy of Ophthalmology and Otolaryngology*.....Duluth Room
 Case Reports—Frank N. Knapp, David L. Tilderquist, Alvin G. Athens and Orien
 B. Patch, Duluth
- 10:15 *Intermission*
 Scientific Cinema.....East Arena
 Visit Scientific and Technical Exhibits.....Mezzanine Arena
 Demonstrations—Rooms D-2, D-3 and D-4
- 11:00 *Minnesota Academy of Ophthalmology and Otolaryngology, Continued*. Duluth Room
 The Incision and Closure of the Wound in Cataract Extraction—Frederick A.
 Davis, Chairman, Department of Ophthalmology, University of Wisconsin,
 Madison

P.M.

Afternoon

- 1:00 Scientific Cinema.....East Arena
 Visit Scientific and Technical Exhibits.....Mezzanine Arena
 Obstetric Manikin Demonstration—Room D-1
 Willis E. Brown, Associate Professor of Obstetrics and Gynecology, University
 of Iowa, Iowa City
- 2:00 *Symposium on Rheumatic Fever*.....Duluth Room
 Paul F. Dwan, Minneapolis, Chairman
 Genesis of Rheumatic Fever—Wesley W. Spink, University of Minnesota, Min-
 neapolis
 Diagnosis of Rheumatic Fever—Morse J. Shapiro, Minneapolis
- 3:15 *Intermission*
 Scientific Cinema.....East Arena
 Visit Scientific and Technical Exhibits.....Mezzanine Arena
 Demonstrations—Rooms D-2, D-3 and D-4
- 4:00 *Symposium on Rheumatic Fever, (Continued)*.....Duluth Room
 Management of Rheumatic Fever and Rheumatic Heart Disease—Benedict F.
 Massell, Associate Research Director, House of Good Samaritan, Boston

Discussion Period

- 5:00 Scientific Cinema.....East Arena
 Visit Scientific and Technical Exhibits.....Mezzanine Arena
 Demonstrations—Rooms D-1, D-2, D-3 and D-4
- 7:30 "Variety Night".....Ballroom, Hotel Duluth
 (Listed under Section I, General Session)

MINNESOTA STATE MEDICAL ASSOCIATION

Tuesday, July 1

SECTION I—GENERAL SESSION

A.M.

- 8:00 Scientific Cinema.....East Arena
Visit Scientific and Technical Exhibits.....Mezzanine Arena
- 8:30 Demonstrations—Rooms D-2, D-3 and D-4
- 11:00 *Obstetrics in General Practice*.....St. Louis Room
Prolonged Labor with Special Reference to Postpartum Hemorrhage—Alexander M. Watson, Royalton
Management of Obstetric Emergencies—Frederick L. Schade, Worthington
General Problem of Anesthesia in Obstetrics—Edward B. Tuohy, Rochester

P.M.

- 12:15 *Round Table Luncheons*
(Listed under Section II, Special Session)

Afternoon

- 1:00 Scientific Cinema.....East Arena
Visit Scientific and Technical Exhibits.....Mezzanine Arena
- 2:00 *New Trends in Infant Care*—Benjamin Spock, Rochester.....St. Louis Room
Presentation of Speaker by Irvine McQuarrie, Minneapolis, representing the Northwestern Pediatrics Society
- 3:00 *Fifteen-minute discussion period*
- 3:15 *Intermission*
- Scientific Cinema.....East Arena
Visit Scientific and Technical Exhibits.....Mezzanine Arena
Demonstrations—Rooms D-2, D-3 and D-4
- 4:00 *Arthur H. Sanford Lectureship in Pathology*.....St. Louis Room
Pathology of Diabetes Mellitus—Elexious T. Bell, Professor of Pathology, University of Minnesota, Minneapolis
Dedication of Lectureship and Presentation of Speaker by Kano Ikeda, St. Paul, President, Minnesota Society of Clinical Pathologists
- 5:00 Scientific Cinema.....East Arena
Visit Scientific and Technical Exhibits.....Mezzanine Arena
Demonstrations—Rooms D-1, D-2, D-3 and D-4
- 7:00 *Annual Banquet*.....Hotel Duluth
(Listed under Section II, Special Session)

Tuesday, July 1

SECTION II—SPECIAL SESSION

A.M.

- 9:00 *Orthopedic and Fracture Surgery*.....Duluth Room
Edward T. Evans, Minneapolis, Chairman
Congenital Dislocation of the Hip Before Walking Begins—Vernon L. Hart, Minneapolis
Treatment of Fractures of the Patella, S. Sverre Houkom, Duluth
- 10:15 *Intermission*
- Scientific Cinema.....East Arena
Visit Scientific and Technical Exhibits.....Mezzanine Arena
Demonstrations—Rooms D-2, D-3 and D-4
- 11:00 *Orthopedic and Fracture Surgery* (Continued).....Duluth Room
Recurrent Dislocations of the Shoulder—Edward H. Juers, Red Wing
Differential Diagnosis of Painful Feet—Mark B. Coventry, Rochester

P.M.

- 12:15 *Round Table Luncheons*
Obstetric Manikin Demonstration—Ralph E. Campbell, Associate Professor, Obstetrics and Gynecology, University of Wisconsin, Madison
Newer Drugs and Therapeutic Methods—Raymond N. Bieter, University of Minnesota
Common Foot Ailments—Edward T. Evans, Minneapolis
Trends in Pediatric Practice—Frank G. Hedenstrom, St. Paul
Management of Sinusitis—Jerome A. Hilger, St. Paul
Parenteral Fluids—John J. Boehrer, Jr., Minneapolis
Urological Procedures in General Practice—Waldo N. Graves, Duluth
Use of Digitalis and Quinidine—Ben Sommers, St. Paul
Dermatology in General Practice—Frederick T. Becker, Duluth
Diabetes—Archibald E. Cardle, Minneapolis

MINNESOTA STATE MEDICAL ASSOCIATION

- 2:00 *American College of Chest Physicians*.....Duluth Room
 J. Arthur Myers, Minneapolis, Chairman
 Follow-up Diagnostic Procedures of Roentgen Lesions Found by Survey Methods
 —William Roemmich, S. A. Surgeon, United States Public Health Service,
 Acting Tuberculosis Control Officer, Minneapolis Health Department
 Discussion by Dr. Myers
 More Common Intrathoracic Tumors—Thomas J. Kinsella, Minneapolis
- 3:15 *Intermission*
- Scientific Cinema.....East Arena
 Visit Scientific and Technical Exhibits.....Mezzanine Arena
 Demonstrations—Rooms D-2, D-3 and D-4
- 4:00 *American College of Chest Physicians (Continued)*.....Duluth Room
 Roentgenologic Diagnosis of Early Carcinoma of the Lung—Leo G. Rigler, Uni-
 versity of Minnesota, Minneapolis
 Discussion by Sumner S. Cohen, Glen Lake Sanatorium, Oak Terrace
 Streptomycin in the Treatment of Tuberculosis—Karl H. Pfuetze, Cannon Falls
 Discussion by G. Arvid Hedberg, Nopeming, and Dexter Lufkin, Veterans
 Hospital, Minneapolis
- 5:00 Scientific Cinema.....East Arena
 Visit Scientific and Technical Exhibits.....Mezzanine Arena
 Demonstrations—Rooms D-1, D-2, D-3 and D-4
- 7:00 *Annual Banquet*.....Hotel Duluth
 Presiding: Daniel W. Wheeler, Duluth, President, St. Louis County Medical
 Society
 Introduction of Mrs. John A. Thabes, Sr., Brainerd, President, Woman's Aux-
 iliary
 Presentation of Fifty Club Certificates
 Presentation of Southern Minnesota Medical Association Medal
 Presentation of Distinguished Service Medal
 President's Address: "For Manners Are Not Idle"—Louis A. Buie, Rochester,
 President, Minnesota State Medical Association
 Address: "Price Tags on Progress"—Mr. Tom Collins, Kansas City, Missouri

Wednesday, July 2

SECTION I—GENERAL SESSION

A.M.

- 8:00 Scientific Cinema.....East Arena
 Visit Scientific and Technical Exhibits.....Mezzanine Arena
- 8:30 Demonstrations—Rooms D-2, D-3 and D-4
- 9:00 *Chemotherapy of Venereal Disease*.....St. Louis Room
 Treatment of Gonorrhea—Walter E. Hatch, Duluth
 Treatment of Syphilis—Paul A. O'Leary, Rochester
- 9:45 *Serum Hepatitis*—Roy H. Turner, Professor of Medicine, Tulane University, New
 Orleans, and Chairman, Committee on Diseases of the Liver, National Research
 Council

10:15

Intermission

- Scientific Cinema.....East Arena
 Visit Scientific and Technical Exhibits.....Mezzanine Arena
 Demonstrations—Rooms D-2, D-3 and D-4

11:00

- Management of Poliomyelitis*.....St. Louis Room
 Epidemiology and Recent Developments—Joseph G. Molner, Medical Consultant,
 National Foundation for Infantile Paralysis, Inc., Wayne University, Detroit
 Treatment of the Sick Child—Erling S. Platou, Minneapolis
 Treatment of the Paralysis—Miland E. Knapp, Minneapolis

P.M.

- 12:15 *Round Table Luncheons*
 (Listed under Section II, Special Session)

MINNESOTA STATE MEDICAL ASSOCIATION

Afternoon

- 1:00 Scientific Cinema.....East Arena
Visit Scientific and Technical Exhibits.....Mezzanine Arena
- 2:00 *Rural Health—A Joint Responsibility*.....St. Louis Room
Louis A. Buie, Rochester, Chairman
The Plan of Action for Farm Communities—Mrs. Charles W. Sewell, Administrative Director, American Farm Women's Division, American Farm Bureau Federation, Chicago
A Sound Public Health Program—Haven Emerson, School of Public Health, Columbia University, New York City
The Health Program in Rural Schools—Dean F. Smiley, Consultant in Health and Physical Fitness, Bureau of Health Education, American Medical Association, Chicago
Physical Education in Rural Schools—Fred V. Hein, Ph.D., Consultant in Health and Physical Fitness, Bureau of Health Education, American Medical Association, Chicago
Hospital Facilities for All—Viktor O. Wilson, Director, Minnesota Hospital Survey and Planning Program, Director, Division of Hospital Services, Minnesota Department of Health
Medical Services—Frank J. Hirschboeck, Duluth

Wednesday, July 2

SECTION II—SPECIAL SESSION

A.M.

- 9:00 *Symposium on Research Problems*.....Duluth Room
James T. Priestley, Rochester, Chairman
Intravenous Protein Therapy—Arnold J. Kremen, University of Minnesota
Evaluation of the Short Proximal Loop in Gastric Resection—Fred Kolouch, Jr., University of Minnesota
Drainage of Liver and Thoracic Duct Lymph—John H. Grindlay, Rochester
Experimental Study of Lymph from Liver and Thoracic Duct—James C. Cain, Rochester
Idiopathic Degeneration of the Meningeal Dura, A New Pathological Entity—Arthur H. Wells, Duluth
(A five-minute discussion period will follow each talk)

10:15

Intermission

Scientific Cinema.....East Arena
Visit Scientific and Technical Exhibits.....Mezzanine Arena
Demonstrations—Rooms D-2, D-3 and D-4

- 11:00 *Symposium on Research Problems (Continued)*.....Duluth Room
The Mechanism of Transient Leukopenia: A Motion Picture—Hiram E. Essex, Ph.D., and Alfonso Graña, Rochester
The Role of Chronic Portal Thrombosis in Splenic Anemia—Mavis P. Kelsey, Rochester
Hemolytic and Non-hemolytic Transfusion Reactions—Edmund B. Flink, University of Minnesota
The Present Status of the Relation of Cholesterol to Arteriosclerosis—E. Russell Hayes, University of Minnesota
(A five-minute discussion period will follow each talk)

P.M.

12:15 Round Table Luncheons

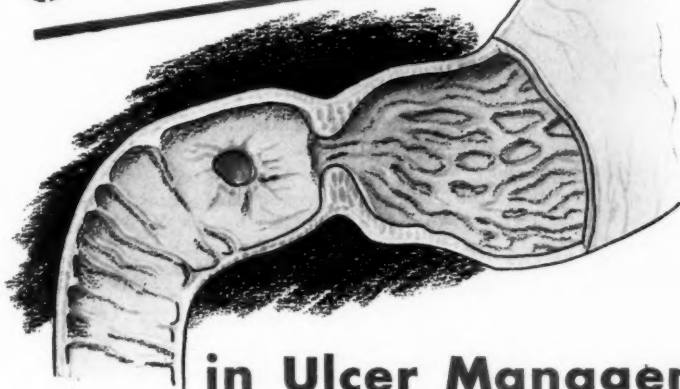
Obstetric Manikin Demonstration—Mancel T. Mitchell, Minneapolis
Meningitis and Its Treatment—Erling S. Platou, Minneapolis
The Anemias—Walter S. Neff, Virginia
Management of Hepatic Disease—Roy H. Turner, Professor of Medicine, Tulane University, New Orleans
Pelvic Pain—Anatomic and Physiologic Aspects—Philip N. Bray, Duluth
Chemotherapy in Wound Management—David P. Anderson, Jr., Austin
Diagnosis of Obscure Fevers in General Practice—Daniel W. Wheeler, Duluth
Management of Patients with Chronic Headaches—Bayard T. Horton, Rochester
Office Practice in Ano-rectal Diseases—William C. Bernstein, St. Paul
Dermatology and Syphilology—Paul A. O'Leary, Rochester

MINNESOTA STATE MEDICAL ASSOCIATION

SCIENTIFIC EXHIBITS

- S-9 *American College of Physicians and Surgeons*
- S-15 *Committee on Rural Medical Service*
- S-17 *Committee on Tuberculosis*
- S-6 *"Dangerous Drugs"*
Minnesota State Pharmaceutical Association
- S-7 *"Health Education"*
Minnesota Public Health Association
- S-5 *"Here's That Nurse"*
Minnesota Nurses Association
- S-16 *"Hospital Services"*
Minnesota Department of Health
- S-3 *Insurance Liaison Committee*
- S-12 *"Macular Diseases"*
Minnesota Society for the Prevention of Blindness
University of Minnesota Department of Ophthalmology
- D-2 *Mayo Foundation for Medical Education and Research and the Mayo Clinic*
(1) "Partial and Total Loss of the Nose, Plastic Reconstruction"
G. B. New and J. B. Erich
(2) "Congenital Anomalies of the Heart and Great Vessels,
Clinicopathologic Study of 115 Cases"
T. J. Dry, J. E. Edwards, R. L. Parker, H. B. Burchell,
A. H. Bulbulian and H. M. Rogers (*Fellow in Medicine*)
(3) "Cranioplasties with Tantalum Plates, A New Method of
Forming Plate Prior to Surgery"
G. S. Baker and A. H. Bulbulian
(4) "Accidents on the Farm and How They Happen, An Analysis of
575 Accidents (569 Patients) seen at the Mayo Clinic from
January, 1935, to January, 1944"
H. H. Young and R. K. Ghormley
(5) "The Fundus of the Eye, In Disorders of the Central Nervous System"
C. W. Rucker
(6) "Streptomycin: Experimental and Clinical Observations"
W. H. Feldman, Ph.D. and H. C. Hinshaw
- S-8 *Minnesota Department of Education*
Division of Vocational Rehabilitation
- S-2 *Minnesota Medical Service, Inc.*
- S-10 *Minnesota Safety Council*
- D-4 *Minnesota Society of Clinical Pathologists*
- S-1 *Minnesota State Medical Association*
Veterans Medical Service Division
- D-4 *"Pathologic Anatomy Exhibit"*
St. Luke's Hospital, Duluth
Arthur H. Wells
Harold H. Joffe
- S-13 *"Radiologic Exhibit"*
University of Minnesota Hospitals
Leo G. Rigler
Thomas B. Merner
- S-17 *St. Louis County Tuberculosis Control Program*
St. Louis County Tuberculosis and Health Association
Duluth and St. Louis County Health Departments
Nopeming Sanatorium
- S-11 *"Teamwork in Cancer Diagnosis"*
Minnesota Division, American Cancer Society, Inc.
- S-14 *"Trichinosis"*
American Medical Association
- S-4 *Woman's Auxiliary to the Minnesota State Medical Association*

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—Portis, S. A.: Diseases of the Digestive System, ed. 2, Philadelphia, Lea & Febiger, 1944, p. 199.

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SEARLE RESEARCH IN THE SERVICE OF MEDICINE

◆ Reports and Announcements ◆

THE AMERICAN BOARD OF ORTHOPAEDIC SURGERY

Any candidate applying for Part I of the examination of the American Board of Orthopaedic Surgery after January 1, 1951, must have the following general qualifications:

1. He must be a citizen of the United States or Canada.
2. He must be a graduate of a medical school approved by the Council on Medical Education and Hospitals of the American Medical Association. In the case of an applicant whose training has been received outside the United States or Canada, his credentials must be satisfactory to the Council on Medical Education and Hospitals of the American Medical Association and to the National Board of Medical Examiners; he must have been engaged in the practice of orthopedic surgery in the United States or Canada for at least three years prior to submission of his application.
3. He must have served an internship of twelve months in a general hospital acceptable to the Board.
4. *He must have spent a year on an approved surgical residency subsequent to the completion of his internship.*

NOTE: This change consists of an additional required year of surgical training before entering on special work in orthopedic surgery.

No individual may apply for Part I of the examination of the American Board of Orthopaedic Surgery who has not completed at least one year in special orthopedic training in addition to meeting the general requirements.

The special qualifications to fulfill the requirements for eligibility to both Part I and Part II of the examination will be furnished on request to the secretary of the American Board of Orthopaedic Surgery, Dr. Francis M. McKeever, 1136 West 6th Street, Los Angeles 14, California.

AMERICAN COLLEGE OF PHYSICIANS AND SURGEONS

The Southern Minnesota Chapter of the American College of Physicians and Surgeons was formed on April 8 at a meeting held in Mankato.

Elected president of the chapter at the meeting, which was attended by thirty physicians from the city and surrounding area, was Dr. L. Gordon Samuelson of Mankato. Other officers named were Dr. Roger Hasset, Mankato, president-elect; Dr. E. A. Thayer, Fairmont, first vice president; Dr. O. J. Swenson, Waseca, second vice president, and Dr. C. F. Wohlrahe, North Mankato, secretary-treasurer. Elected to the board of directors were Dr. M. E. Lenander, St. Peter, and Dr. F. W. Franchere, Lake Crystal.

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TRULY A "Must-See" WHEN IN DULUTH

Principal speakers at the meeting included Dr. F. G. Benn, Minneapolis, president of the state chapter; Dr. O. A. Lenz, secretary-treasurer of the Minneapolis regional chapter, and R. H. Muehlberg, executive-secretary of the state chapter.

In his talk Dr. Benn announced that the board of directors of the organization is considering a plan to award scholarships to a number of first-year medical students, on a competitive basis, if the students agree to study to become general practitioners. The directors feel that the plan would benefit rural communities throughout the state by providing an additional supply of family doctors in small towns and farming areas, Dr. Benn stated.

AMERICAN RADIUM SOCIETY

Dr. Robert S. Stone, professor of radiology at the University of California Medical School, San Francisco, who was closely associated with atomic research during World War II, was selected to deliver the Janeway lecture at the twenty-ninth annual meeting of the American Radium Society held at the Seaside Hotel in Atlantic City on June 9 and 10.

The lecture carried the Janeway medal which was awarded to Dr. Stone at a dinner June 9. Dr. Stone's lecture, entitled "Neutron Therapy and Specific Ionization," was delivered that afternoon.

The Janeway lecturer is selected annually by a committee of six members of the American Radium Society, which is composed of many of the country's leading

cancer specialists. The award was established in 1933 in memory of Henry Harrington Janeway for his pioneer work in the field of radium therapy.

The society's two-day convention this year was held in connection with the centennial meeting of the American Medical Association in Atlantic City, June 9-13. Among those taking part in the scientific program was Dr. Eugene T. Leddy, Rochester, Minnesota.

COLLEGE OF AMERICAN PATHOLOGISTS

At a meeting held at the Drake Hotel in Chicago on December 13, 1946, which was attended by 130 pathologists from almost every state in the union and from Canada, a constitution and by-laws of the College of American Pathologists were adopted and the following officers were elected: Dr. Frank W. Hartman, Detroit, president; Dr. Granville A. Bennett, Chicago, vice president, and Dr. Tracy B. Mallory, Boston, secretary-treasurer.

AMERICAN CONGRESS OF PHYSICAL MEDICINE

The American Congress of Physical Medicine will hold its twenty-fifth annual scientific and clinical session September 2 to 6, at the Hotel Radisson, Minneapolis. Scientific and clinical sessions will be given the days of September 3, 4, 5 and 6. All sessions will be open to members of the medical profession in good standing with the American Medical Association. In addition to the scientific sessions, the annual instruction courses will be held September 2, 3, 4 and 5. These

REPORTS AND ANNOUNCEMENTS

courses will be open to physicians and the therapists registered with the American Registry of Physical Therapy Technicians. For information concerning the convention and the instruction course, address the American Congress of Physical Medicine, 30 North Michigan Avenue, Chicago 2, Illinois.

SOCIETY OF CLINICAL SURGERY

The seventy-sixth semi-annual session of the Society of Clinical Surgery was held in Rochester on May 9 and 10. Members of the Mayo Clinic staff provided the program for the two-day meeting, with operative clinics in the mornings and presentation of papers in the afternoons.

President of the society is Dr. Daniel C. Elkin of Emory University in Atlanta, Georgia. Other officers are Dr. Leland S. McKittrick, Boston, vice president; Dr. Howard K. Gray, Rochester, secretary, and Dr. Warren H. Cole, Chicago, treasurer. Dr. Waltman Walters, Rochester, is a member of the committee on admissions.

HEARING AID FIRM OFFERS FELLOWSHIP

L. A. Watson, president of the Maico Company, Inc., of Minneapolis, has announced a \$500 graduate fellowship to the University of Minnesota for research in the field of deafness and hearing. The Board of Regents of the University has accepted the \$500 stipend, and a

graduate student in the department of speech will be given an opportunity to pursue original research and investigation in the field of hearing and deafness.

Among the many unsolved problems of deafness and hearing which offer promising fields of research are: the effects of fatigue and distortion on speech intelligibility, the value of selective frequency emphasis in speech intelligibility for hard-of-hearing persons, and how deafened persons hear at intense loudness levels.

HENNEPIN COUNTY SOCIETY

A symposium on "Bowel Obstruction" was presented at the meeting of the Hennepin County Medical Society held in Minneapolis on May 5. Participants in the symposium were members of the department of surgery of the University of Minnesota Medical School, and included Dr. Clarence Dennis, Dr. Fred Kolouch, Jr., Dr. Arnold Kremen, and Dr. Christian Bruusgaard. Dr. Bruusgaard, who is from Oslo, Norway, is a traveling Fellow in Surgery.

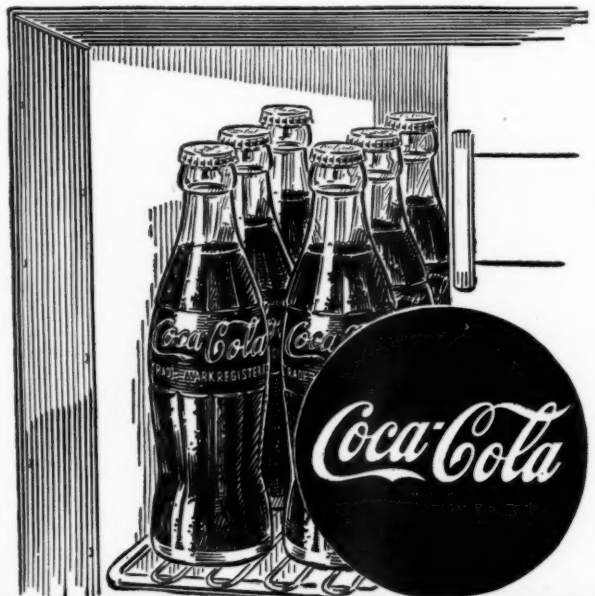
RED RIVER VALLEY SOCIETY

At the quarterly meeting of the Red River Valley Medical Society, held in Crookston on April 15, a discussion of "Psychosomatic Medicine" was presented by Dr. O. L. Norman Nelson of Minneapolis. Dr. Nelson, who is associated with the department of medicine at the University of Minnesota Hospitals and Minneap-

(Continued on Page 681)



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WOMAN'S AUXILIARY

Hennepin County

The annual meeting of the Hennepin County Medical Auxiliary was held at the Curtis Hotel, Minneapolis, on Friday, May 2, 1947.

After a one o'clock luncheon, the following officers were elected for 1947-1948:

President—Mrs. Frederick H. K. Schaaf.
President-elect—Mrs. Reuben F. Erickson.
First Vice President—Mrs. L. R. Boies.
Recording Secretary—Mrs. Frank R. Hirshfield.
Corresponding Secretary—Mrs. Frank T. Cavanor.
Treasurer—Mrs. Arthur W. Russeth.
Auditor—Mrs. Johannes K. Moen.
Custodian—Mrs. Leo W. Fink.

Ramsey County

The April meeting of the Ramsey County Medical Auxiliary was a tea at the home of Mrs. L. W. Barry, 2193 Sargent Avenue, Saint Paul. Miss Etta Lubbert, Superintendent of Nurses at Ancker Hospital, presented a program for recruiting nurses.

Mrs. Lyle Fisher of Saint Paul sang a group of children's songs which she has composed.

Red River Valley

Election of officers featured the meeting of the Red River Valley Medical Auxiliary which was held April 15 at the home of Mrs. M. O. Oppegaard.

The meeting immediately followed the dinner meeting at the Hotel Crookston which was attended by members of the medical association and its auxiliary.

All officers were re-elected for the coming year. They are Mrs. Oppegaard, president; Mrs. O. K. Behr, vice president; Mrs. A. R. Reff, secretary, and Mrs. C. L. Oppegaard, treasurer.

The office of social secretary was added to the slate and Mrs. R. O. Sather was elected to that office. Sixteen members attended the meeting.

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IN MEMORIAM

In Memoriam

FRANCIS E. HARRINGTON

Dr. Francis E. Harrington, for twenty-four years health commissioner of Minneapolis until his retirement in 1944, died at West Palm Beach, Florida, on May 10, 1947.

Born in Norfolk, Virginia, on June 19, 1879, the son of a brigadier general in the U. S. Marine Corps, Dr. Harrington later attended public schools in Boston and Washington, D. C. He received a B.Sc. degree from Gonzaga College, Washington, in 1899 and an M.D. degree from Columbia University, Washington, now known as George Washington University, in 1904. After interning at the Casualty Hospital, Washington, he practiced in Washington from 1904 until 1910 and at Cumberland, Maryland, from 1910 to 1914. He then joined the U. S. Public Health Service and had assignments in nine different states between the years 1914 and 1920.

In 1920 Dr. Harrington was called to be commissioner of health in Minneapolis, in which capacity he served until he resigned in 1944. In addition to this full-time job, he acted as superintendent of Minneapolis General Hospital from 1937 to 1939 and again from 1942 until 1944. In 1945 he was appointed superintendent of the Elizabeth Kenny Institute.

In addition, he was director of Lymanhurst Health

Center, clinical professor of preventive medicine and public health at the University of Minnesota, and a member of the Glen Lake Sanatorium Commission of Hennepin County.

Dr. Harrington was a charter member and first president of the International Society of Medical Health Officers in 1928. He was also a past secretary and treasurer of the society.

He was a member of many organizations, including the Association of Military Surgeons of the United States, the Military Order of Carabao, the National Tuberculosis Association; a Fellow of the American College of Physicians; a past president of the Minnesota Trudeau Society, the Minnesota Sons of the Revolution, the National Society of the Sons of the American Revolution, the Knights of Columbus, and the St. Thomas Catholic Church.

Dr. Harrington is survived by his wife, two sons and five daughters.

One of Dr. Harrington's outstanding characteristics was his executive ability. His energy and honesty and his pleasing personality enabled him to accomplish much in his chosen field of public health.

PETER M. HOLL

Dr. Peter M. Holl, Minneapolis, died April 13, 1947, at the age of eighty-four.

Dr. Holl was born in Lake Prairie Township, Nicollet County, on August 19, 1862. He obtained his medical education at the Minnesota Hospital College, Minneapo-

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lis, from which he graduated in 1887 and at Bellevue Medical College, New York. Postgraduate work was taken in pediatrics at the New York Polyclinic.

Dr. Holl was a city physician from 1907 to 1909. He was a member of the Hennepin Lodge, A.F. and A.M., and of the Hennepin County Medical Society, and the Minnesota State and American Medical Associations.

Dr. Holl's wife, the former Annie May Fillmore, passed away in 1931.

THOMAS M. JOYCE

Dr. Thomas M. Joyce, of Portland, Oregon, died on April 18, 1947.

Dr. Joyce was born January 28, 1885, at Emmetsburg, Iowa; attended Notre Dame University from 1903 to 1906; received the degree of M.D. in 1910 from the University of Michigan, and was an intern at the University Hospital, Ann Arbor, from 1910 to 1911. He entered the Mayo Clinic in June, 1911, and was an intern at St. Mary's Hospital for twenty-five months and a surgical assistant for nine months. He left the Mayo Clinic in April, 1914.

During World War I he was chief surgeon at Base Hospital 46, and was with the AEF for nine months. At the time of his death he was head of the department of surgery at the University of Oregon Medical School and head of the department of surgery at the Multnomah Hospital and Portland Clinic. He also was attending surgeon at St. Vincent's Hospital.

Dr. Joyce was a member of the American College of

Surgeons, the American Medical, the American Surgical, and the Pacific Coast Surgical Associations, was president of the Alumni Association of the Mayo Foundation in 1923-24 and a member of Alpha Omega Alpha.

RED RIVER VALLEY SOCIETY

(Continued from Page 678)

olis General Hospital, was introduced by the president of the society, Dr. C. G. Uhley, Crookston.

Another feature of the meeting was a talk by Dr. J. F. Norman, Crookston, on the development of plans for pre-paid medical service by the state medical association.

WASHINGTON COUNTY SOCIETY

At the regular session of the Washington County Medical Society in Stillwater on May 13, Dr. Wade R. Humphrey, Stillwater, was in charge of a discussion of plans for the enlargement and improvement of Lake View Memorial Hospital in Stillwater. To clarify the discussion, Dr. Humphrey showed enlarged photographs of the hospital as it is at the present time, and pointed out just where additions could be made. He then showed the group a colored drawing to demonstrate how the suggested changes would appear from a scenic point of view. After the presentation a committee was appointed to investigate the possibility of carrying out such a project.

◆ Of General Interest ◆

MOWER COUNTY HONORS THREE FIFTY-YEAR PHYSICIANS

On March 26, 1947, the members of the Mower County Medical Society gave a dinner in honor of three Mower County physicians, each of whom has served his community continuously for over fifty years.

The recipients of the tributes were Dr. A. E. Henslin, eighty-one, who has practiced at LeRoy for fifty-six years; Dr. O. H. Hegge, seventy-five, who has been a physician in Austin for fifty-four years; and Dr. G. J. Schottler, seventy-six, who has practiced at Dexter for fifty-one years.

Each of the three deans of Mower County medicine has a son who is a physician. At the honor dinner, biographies of their fathers were read by Dr. M. E. Henslin, LeRoy, and Dr. R. S. Hegge, Austin. Dr. Max Schottler, Minneapolis, was unable to attend the dinner, but he prepared a biography of his father which was read by Dr. Paul Leck, president of the Mower County Medical Society, who was master of ceremonies.

A highlight of the program was the reminiscing done by the three guests of honor, who recalled vivid episodes, both humorous and grim, from their days of horse-and-buggy medicine—nerve-racking journeys through mud-



From left to right: Dr. G. J. Schottler, Dexter; Dr. A. E. Henslin, LeRoy, and Dr. O. H. Hegge, Austin, Minnesota.

covered country, on-the-spot amputations in farm shanties, struggles with x-ray machines that had hand-cranked generators and plate glass films.

At the dinner which was attended by members of the medical society and their wives, Dr. Henslin was also honored for his thirty years of continuous service as treasurer of the society.

Dr. R. L. J. Kennedy, Rochester, district counselor for the Minnesota State Medical Association, paid tribute

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to the three physicians on behalf of the state organization. Dr. L. A. Buie, Rochester, president of the state association, spoke on "Present Trends in Medical Practice and Social Legislation Affecting Medicine."

DR. WENDELL GRINNELL HONORED

A record of forty-seven years in the practice of medicine belongs to Dr. Wendell Grinnell who recently celebrated a birthday in Preston, Minnesota. On Sunday, April 20, 1947, he was honored and feted by hundreds of his townspeople as well as by patients throughout the surrounding country.

To do honor to his forty-seven years of faithful service, a general homecoming was held in Preston's town hall. There his countless friends and patients gathered to wish him well.

Dr. Grinnell came to Fillmore County in 1900, located in Wykoff for one year, then moved to Preston, the county seat. In those early days the horse and buggy provided the general means of travel for a country doctor. He kept several driving horses, along with a driver to transport him to the outlying towns. For many years he owned and operated his own hospital in Preston but this since has been closed.

Many a night he would keep vigil at the bedside of a patient, only to find an urgent case waiting when he returned home, necessitating perhaps another long drive before he could snatch a few hours of sleep.

At this birthday celebration a program was presented with Charles V. Michener acting as master of cere-

A. L. MALMO

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ANNOUNCES CONTINUOUS COURSES

SURGERY—Two-week intensive course in Surgical Technique starting July 21, August 18, September 22. Four-week course in General Surgery starting July 7, August 4, September 8, October 6.

Two-week course in Surgical Anatomy & Clinical Surgery starting July 21, August 18, September 22.

One-week course in surgery of Colon & Rectum starting September 15 and November 3.

Two-week course in Surgical Pathology every two weeks.

FRACTURES & TRAUMATIC SURGERY—Two-week intensive course starting June 16, October 6.

GYNECOLOGY—Two-week intensive course starting September 22, October 20. One-week course in Vaginal Approach to Pelvic Surgery starting September 15, October 13.

OBSTETRICS—Two-week intensive course starting September 8, October 6.

MEDICINE—Two-week intensive course starting October 6.

Two-week course in Gastro-Enterology starting October 20.

One-week course in Hematology starting September 29.

One-month course in Electrocardiography & Heart Disease starting June 16, September 15.

Two-week intensive course in Electrocardiography & Heart Disease starting August 4.

DERMATOLOGY & SYPHILOLOGY—Two-week course starting June 16, October 20.

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monies. Rev. Allen W. Flohr gave the invocation. Musical selections consisted of vocal solos by Rev. Donald Roesti and Mrs. M. Anderson and group singing by Mrs. Claude Cutter and daughters Fauntic and Doris. Rev. P. J. Nestande of Lanesboro and Rev. Gaede spoke in tribute to Dr. Grinnell, following which the audience sang "Happy Birthday" to the honor guest.

At this time a tray with hundreds of birthday cards was presented to Dr. Grinnell, who in turn responded with a short talk of appreciation and thanks for the gifts. He stressed the fact that his many good friends meant more to him than all the honors he might receive. He compared Preston and the township to a garden which he claimed as his own, with his numerous friends and patients as the flowers in that garden.

Many out-of-town guests attended the function; in fact, the hall was overflowing. The demonstration of good fellowship and friendship must have been a source of great satisfaction to Dr. Grinnell after his faithful service for almost half a century.

* * *

Dr. M. M. Loucks has installed a new x-ray machine in his offices at Kelliher.

* * *

Dr. E. V. Allen, Rochester, has been re-elected governor of the American College of Physicians for a term of three years.

* * *

Dr. F. G. Chermak, International Falls, attended the April meeting of the St. Louis County Medical Society held in Eveleth.

* * *

During the last week of April, Dr. R. V. Sherman, Red Wing, attended a meeting of the American College of Physicians in Chicago.

* * *

Early this spring, Dr. E. R. Samson, Stillwater, spent two weeks at the Cook County General Hospital, Chicago, studying surgery.

* * *

On May 1, Dr. T. H. Leitschuh, formerly associated with Dr. J. A. Cosgriff in Olivia, opened a medical office in the Hensch Building in Sanborn.

* * *

Discontinuing his practice in Gibbon, Dr. Paul C. Benton of that city is beginning a three-year course in neuro-psychiatry at the University of Minnesota.

* * *

Dr. Clyde A. Undine, Minneapolis, attended the clinical meeting of the American College of Physicians held in Chicago April 28 to May 2.

* * *

In Winnipeg on May 5, at the sectional meeting of the American College of Surgeons, Dr. R. K. Ghormley, Rochester, led a panel discussion on fractures and spoke on "Fractures of the Hip."

* * *

Dr. Charles Vandersluis was named by the Bemidji City Council to fill the unexpired term of Dr. D. H. Garlock who resigned as city health officer early in May.

OF GENERAL INTEREST

Dr. Everett C. Perlman, Minneapolis, announces the removal of his offices to 301 Kenwood Parkway, Minneapolis, and his association with Dr. Max Seham in the practice of pediatrics.

* * *

It was recently announced that Dr. O. J. Hagen, Moorhead, has been made an emeritus member of the executive committee of the Minnesota Public Health Association, of which he is a former president.

* * *

Dr. Ramby C. Rasmussen, Newport, has been appointed medical consultant for the Master Eye Foundation, a nonprofit organization that supplies guiding dogs free of charge to eligible blind persons.

* * *

Dr. M. E. Mosby, Long Prairie, has been taking a three-month postgraduate course in eye, ear, nose and throat diseases at the New York Polyclinic Hospital, New York City.

* * *

At the sectional meeting of the American College of Surgeons, held in Winnipeg on April 28 and 29, Dr. Fred Kolouch, Jr., Dr. James M. Hayes and Dr. Clarence Dennis, all of Minneapolis, were speakers.

* * *

Dr. Clare Gates, assistant health commissioner of Minneapolis, spoke at the graduation exercises for forty-three Franklin Hospital practical nurses on April 23 at the Woman's Club Assembly, Minneapolis.

* * *

Recently appointed assistant professor in the department of bacteriology and immunology at the University of Minnesota is Dr. W. F. M. Limans, formerly of Duluth, who received his Ph.D. degree from the University in March.

* * *

The former medical director of St. Barnabas Hospital, Minneapolis, Dr. Clement C. Clay has been appointed director of a graduate course in hospital administration which will be held at Yale University, starting in September.

* * *

"Streptomycin: An Antibiotic Effective Against Some Forms of Clinical Tuberculosis" was the topic of a paper presented by Dr. H. C. Hinshaw, Rochester, at a meeting in Atlantic City in early May of the American Society for Clinical Investigation.

* * *

Dr. Owen H. Wangenstein, director of the department of surgery at the University of Minnesota Medical School, spoke on new medical discoveries at the Westminster Youth Fellowship service on April 20 at Westminster Presbyterian Church in Minneapolis.

* * *

At a meeting sponsored jointly by the Colorado State Medical Society and the University of Colorado School of Medicine on May 12 and 13 in Denver, Dr. F. H. Krusen, Rochester, spoke on "The Development of the Modern Era of Physical Medicine" and "Physical Medicine in Diagnosis and Treatment of Poliomyelitis."

JUNE, 1947

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Dr. Cecil J. Watson, chief of the department of medicine at the University of Minnesota Medical School, was elected recorder of the Association of American Physicians during the May convention of the organization at Atlantic City, New Jersey.

* * *

Coeds at the University of Minnesota were told of present-day vocational opportunities for women at a conference on May 20 conducted by a select group of faculty members, one of whom was Dr. Ruth Boynton, director of the Student Health Service.

* * *

Speaking at a meeting of the Minnesota Association of Hospital and Medical Librarians, at the Radisson Hotel in Minneapolis on May 17, Dr. Olga S. Hansen discussed new developments in medicine, and Dr. Francis Walsh talked on the characteristics of the eye.

* * *

Dr. M. B. Hebeisen, Dr. G. T. Schimelpfenig and Dr. B. H. Simons, all of Chaska, attended the annual meeting and banquet of the Scott-Carver Medical Society in Shakopee on April 9, where they heard Dr. Wayne S. Hagen, Minneapolis, speak on liver disease.

* * *

Dr. E. B. Flink, assistant professor of medicine at the University of Minnesota Medical School, who has been University representative at Ancker Hospital, Saint Paul, for the past two years, became supervisor of the outpatient department of the University Medical School on June 15, 1947.

* * *

Dr. W. D. Holcomb, formerly of Colorado Springs, Colorado, accepted the senior residency at Abbott Hospital, Minneapolis, and began his work there on April 1. A graduate of Boston University, Dr. Holcomb has been approved for visiting membership by the Hennepin County Medical Society.

* * *

The Minnesota Hospital Association has received the first award of the American Hospital Association in recognition of its public education program led by Dr. William A. O'Brien of the University of Minnesota. The Minnesota group has been given the first award each year since 1943.

* * *

Announcement has been made that Dr. F. Paul Kortsch has opened offices for the practice of medicine at 6614 Lyndale Avenue South, Richfield, Minneapolis. A graduate of the University of Colorado, Dr. Kortsch has conducted a clinic and general practice at Prior Lake for the past ten and one-half years.

* * *

Dr. A. W. Skoog-Smith, who left Mahanomen in March to study radiology at the University of Minnesota and at Cornell Medical Center, has been replaced by Dr. Kenneth Danford, formerly of Minneapolis. Dr. Danford, a graduate of the Temple University School of Medicine, is associated with Dr. K. W. Covey in Mahanomen.

* * *

Campbell physician, Dr. W. E. Wray, was honored at an April dinner at which he was paid tribute for fifty

MINNESOTA MEDICINE

OF GENERAL INTEREST

years of medical practice. Since he began practice, Dr. Wray has brought 2,500 babies into the world. Now seventy-three years old, he intends to continue his medical practice.

* * *

Chairman of the Blue Earth County Medical Society Tuberculosis Committee, Dr. A. G. Liedloff of Mankato, attended a meeting in Saint Paul on May 9 to confer with other county chairmen and with members of the Committee on Tuberculosis of the state medical association.

* * *

Honor guests for the annual Pioneer Dinner of the Chisholm Chamber of Commerce on May 26 were Dr. and Mrs. A. W. Graham of Chisholm. Dr. Graham, author of numerous articles in medical journals, has been the school physician of the Chisholm district for many years.

* * *

With his resignation, early in May, Dr. H. C. Doms, Slayton, ended fifteen years of service as Murray County representative on the board of commissioners of the Southwestern Minnesota Tuberculosis Sanatorium in Worthington. Appointed to fill the vacancy was Dr. R. F. Pierson, also of Slayton.

* * *

Dr. Earl H. Wood, Rochester, Mayo clinic staff member, plans to attend the seventeenth International Physiological Congress to be held in Oxford, England, from July 22 to 25. Dr. Wood is one of ten men in the country to receive an attendance award to the

Congress given by the American Physiological Society to physiologists under thirty-five years of age who have made outstanding research contributions.

* * *

Dr. Charles A. Haberle, formerly of Minneapolis, has become affiliated with the clinic operated by Dr. O. G. Lynde in Thief River Falls. A graduate of the University of Minnesota Medical School, Dr. Haberle served his internship at Minneapolis General Hospital and then joined the staff of Glen Lake Sanatorium near Minneapolis.

* * *

Chosen to represent Saint Paul Jewish physicians, Dr. William Ginsberg in April signed a goodwill certificate which was to be sealed in the cornerstone of a new tuberculosis hospital, a unit of Hebrew University Hospital on Mt. Scopus, Jerusalem. Funds for the erection of the hospital were raised by Hadassah Medical Organization.

* * *

Dr. Karl H. Pfeutze, superintendent and director of the Mineral Springs Sanatorium in Cannon Falls, conducted a chest clinic in Faribault on April 21. At the clinic, which is an annual spring event in Faribault, Dr. Pfeutze interviewed former patients of the sanatorium and administered free Mantoux tests to all volunteers.

* * *

The recently organized army community relations committee in Rochester is headed by Dr. Charles W. Mayo. Part of a program being launched by the Fifth

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Army of the United States, the committee will inform the public of army activities, will advise the commanding general on public trends in regard to army affairs, and will assist in the army recruiting campaign.

* * *

At the annual meeting of the Children's Hospital Association in Saint Paul on April 28, Dr. Clifford G. Grulee, Jr., spoke on "Acute Poliomyelitis in Children." A member of the staff of the University of Minnesota Hospitals, Dr. Grulee has done extensive research work in connection with the poliomyelitis project of the hospitals.

* * *

As a guest of the Section of Radiology and Physiotherapy of the State Medical Association of Texas, Dr. H. M. Weber, Rochester, presented three papers at the group's meeting during the first week of May. His topics were "Roentgenologic Contribution to the Diagnosis of Colitis and Enteritis," "Roentgenologic Examination in the Diagnosis of Functional Intestinal Abnormality," and "Conduct of Roentgenologic Examination of the Colon and Small Intestine."

* * *

At a dinner following the American College of Physicians postgraduate course in rheumatic diseases, held in Rochester during March, Dr. Francis J. Braceland of the Mayo Clinic staff presented "The Saga of a Psychiatrist in World War II." Dr. Braceland, who studied in Germany in 1935 and 1936, and who was a visitor at the Nuernberg war trials, drew comparisons

between the arrogant Nazi leaders before the war and the confused defeated men who were on trial. He also discussed aspects of the psychiatric situation in Europe today.

* * *

Dr. and Mrs. B. O. Mork, Sr., Worthington, took off from LaGuardia Field, New York, on May 25 for a trans-Atlantic flight to Oslo, Norway. Time for the trip was expected to be sixteen hours. After more than a month in Norway and Sweden, they plan to begin their homeward flight from Stockholm on July 2. That will be the thirteenth Atlantic crossing for Dr. Mork. His first, years ago, from Norway to the United States, required three weeks.

* * *

Miss Isabelle J. Anderson, librarian of the Ramsey County Medical Society library since 1930, has accepted the position of librarian of the medical division of the University of Utah library at Salt Lake City. She will assume her new duties there on July 1, 1947.

Miss Anderson will be succeeded at the Ramsey library by Miss Mary M. Post, who has been assistant librarian at the library of the University of Louisville School of Medicine.

* * *

Two weeks after his arrival home in March from medical service in Europe, Dr. Mentor H. Christensen, Northfield, enrolled at the Center for Continuation Study at the University of Minnesota, planning to study orthopedics. Dr. Christensen, who was graduated from the University of Minnesota Medical School shortly



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before beginning thirty-two months in the army, spent seventeen months in service in Germany, France, and Africa.

* * *

April 29 was the date of the marriage of Dr. Anthony L. Ourada of Walnut Grove and Miss Mary Henkels of Heron Lake. Their double ring ceremony was held in the Sacred Heart Church in the bride's home town.

Dr. Ourada received his medical degree from the University of Minnesota Medical School in March, 1946. A reserve officer in the U. S. Army Medical Corps Dr. Ourada will report to Fort Sam Houston, Texas, in July to be assigned to active duty.

* * *

Dr. A. M. Snell, Rochester, had a busy week in Los Angeles early in May as a guest speaker at a meeting of the California State Medical Association. He was moderator in a panel discussion on diseases of the stomach, conducted a pathologic conference on diseases of the liver, participated in a symposium on "What's New?" spoke to the general assembly on "Viral Hepatitis and the Public Health," and conducted a pathologic conference on liver diseases at the Cottage Hospital, Santa Barbara.

* * *

Antibiotics, anesthetic aids, and aviation medical advances were some of the subjects covered by Dr. David A. Sher, Virginia, in a talk before the Virginia Study Club at its regular meeting in April. Speaking on the topic, "Recent Advances in the Field of Medicine and Peeps at Things to Come," Dr. Sher, a member of the Lenont-Peterson Clinic, pointed out the many discoveries made and the new methods developed in medicine and surgery in the ten years between 1936 and 1946.

* * *

Landing a 128-pound tarpon during a fishing rodeo in Tampico, Mexico, won second prize for Dr. H. W. Goehrs, St. Cloud, while on a vacation trip this spring.

Dr. Goehrs, who made his catch at the mouth of the Panuco River, fishing from a skiff about half again as large as an ordinary rowboat, was pleased but not particularly amazed at the size of his prize-winning fish. A few days earlier he had landed two tarpons which were over six feet in length and tipped the scales at 150 pounds.

* * *

Dr. Duane R. Ausman announces that he has opened offices for the general practice of medicine and surgery at 1673 Arona Street, in the Falcon Heights District, Saint Paul. A graduate of the University of Minnesota Medical School, Dr. Ausman entered the army in 1942 and served in Australia, New Guinea and the Philippines. He was awarded the Bronze Star for meritorious conduct during the invasion of the Philippines. Following his discharge from service, he was associated with the Health Service of the University of Minnesota.

* * *

One of the papers presented at the meeting of the Association of American Physicians in Atlantic City on May 6 and 7 was "Striking Syndrome of Marked Bloat-

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ing Without Gas in the Bowel" by Dr. W. C. Alvarez, Rochester. From Atlantic City Dr. Alvarez went to Charleston, West Virginia, to speak on "Puzzling Types of Abdominal Pain" at a meeting of the West Virginia State Medical Association. By May 16 he was in Toronto, Canada, where he addressed the Toronto Medical Association on the subject, "What Is Wrong with the Dyspeptic Whose Findings Are All Negative."

* * *

In Lake City, on May 1, Dr. Robert N. Bowers announced that Dr. William P. Gjerde, formerly of Saint Paul, had joined him in a partnership medical practice.

Dr. Gjerde, a native of Staples before entering the University of Minnesota, received his medical degree in 1939 and then joined the staff of the Northern Pacific Hospital in Saint Paul. During the war he served in the army for four years, spending two of the years in China. Following his discharge from military service, he returned to Saint Paul. For the last six months before he joined Dr. Bowers in Lake City, Dr. Gjerde took postgraduate work at the University of Minnesota Hospitals.

Dr. Harry E. Bowers, father of Dr. Robert N. Bowers, announced his retirement at the same time. He has practiced at Lake City since 1919.

* * *

The man who invented a workable external "artificial kidney," Dr. W. J. Kolff of Holland, was in Minneapolis on May 17 to inspect a model of his invention constructed by Dr. Roger M. Reinecke, assistant professor of physiology at the University of Minnesota.

While Dr. Kolff's device has been used on patients, and Dr. Reinecke's has been used only in animal experiments, both machines work on the same principle: the removal of urea from the blood by passing the blood through 30 to 40 yards of cellophane tubing stretched on a mesh-covered cylinder which is rotated through a salt solution.

Dr. Reinecke first heard of Dr. Kolff's machine in September, 1944, when as an army medical corps officer he landed in Holland with the 82nd Airborne Division. From various reports of the original device—he never actually saw it himself—Dr. Reinecke later was able to construct his own model after he joined the staff of the University of Minnesota last fall.

"Doctor to a Million" was the title conferred on Dr. William A. O'Brien, University of Minnesota director of postgraduate medical education, in the May issue of *Radio Mirror* magazine. The title-bestowing article commented on Dr. O'Brien's public health programs which have been broadcast on station WCCO since 1928.

During the last two weeks of April, extracurricular speaking assignments for Dr. O'Brien included (1) comments on patent medicines at the Minnesota State Pharmaceutical Association convention in Minneapolis, (2) a talk on "Social Organizations for Health Maintenance," one of a series of lectures on "Our World and Our Times" sponsored by the general extension division of the University of Minnesota at the Center for Continuation Study, and (3) an address in Stillwater at a dinner marking the completion of the first year of county nurse work in Washington County.

* * *

Principal speakers at the annual meeting of the Group Health Association, held in Minneapolis in April, were Dr. Frederick W. Jackson, deputy public health minister of Manitoba, Canada, and Dr. M. W. Shadid, Elk City, Oklahoma.

Dr. Jackson described a government-sponsored medical program to attract physicians from cities into the rural areas of Manitoba. Dr. Shadid, founder of the first rural co-operative hospital in the United States, stated that medicine has become "so complex that the individual doctor is not able to render adequate care," and asserted that medical care must be based on group work to be effective. During the weeks following the association meeting, Dr. Shadid advocated his ideas on community co-operative hospitals in speeches delivered at various cities in Minnesota, including Benson, Bagley and Duluth.

* * *

Domesticated radar may become a valuable therapeutic aid in the future.

Experiments being conducted by the Mayo Foundation for Medical Education and Research have suggested that ultrahigh-frequency radio waves, similar to those used in wartime radar, may produce better results than the short-wave diathermy machines now being used in physical medicine.

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wave-producing units being tested by the Mayo Foundation experimenters is a small vacuum tube called the cavity magnetron, which emits a beam of ultrahigh-frequency radio waves that can be focused or even bent around a corner. The frequency of such waves is 2,450 megacycles (close to two and one-half billion cycles per second).

It is hoped that the experiments will show that these microwaves will penetrate more deeply and produce longer-lasting heat than the waves emitted by present-day short-wave diathermy machines.

HOSPITAL NEWS

Work was begun in late April on alterations and additions to a building in Forest Lake which will become the new Forest Lake Clinic Hospital. The hospital when completed will consist of three floors, each 30 by 60 feet in area.

Complete equipment has already been purchased and is ready for installation as soon as the structure is finished. Much of the equipment, which includes a new x-ray machine, sterilizers, and mechanical beds with inner-spring mattresses, was obtained from war surplus material.

The hospital is being planned as a twelve-bed unit but will be able to take care of additional patients on an emergency basis. Kitchen and dining room facilities will be located in the basement, with a dumb-waiter arrangement for conveying food to the upper floors. An emergency room, x-ray room, laboratory, waiting room and two wards will be located on the first floor, while second floor will be devoted to a maternity department, with a delivery room, nursery, two wards and two private rooms. Two graduate nurses will be employed by the hospital.

Dr. E. C. Burseth, recently discharged from army service, will be associated with Dr. G. M. Ruggles, of the Forest Lake Clinic, in the operation of the new hospital.

* * *

On April 1 the board of directors of the Kittson War Veterans' Memorial Hospital in Hallock provided permanent unified living quarters for the hospital nursing staff by purchasing a private residence near the hospital to serve as a nurses home.

* * *

Dr. Henry Hutchinson, former assistant superintendent at Moose Lake State Hospital, has been appointed acting superintendent to succeed Dr. M. W. Kemp who resigned several months ago. During the war Dr. Hutchinson served as acting superintendent of the Hastings State Hospital while its superintendent, Dr. Ralph Rosen, was in the navy.

At a meeting of the Commercial Club of Cannon Falls in late March, Dr. Viktor O. Wilson, of the Minnesota State Department of Health, discussed the building of a local hospital and the expense involved in the construction of such a structure. He also described the Federal aid plan to assist communities in the financing of needed local hospitals, under a state administration.

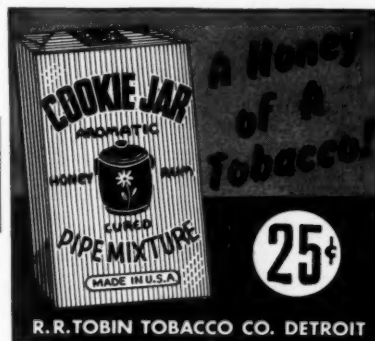
* * *

The new board of directors of Sanford Hospital in Farmington met during April and named Lawrence Thorson, Northfield, as the new hospital manager. Elected to office at the meeting were Dr. J. A. Sanford, Farmington, president; L. A. Godby, vice president, and Helen Kakac, secretary-treasurer.

Plans for refinancing the hospital were left for further discussion at the next meeting. The institution is now handling an average of 500 patients per year.

* * *

General solicitation for funds to help finance a \$1,500,000 addition to St. Luke's Hospital, Duluth, began on June 1 under the direction of G. A. Andresen, presi-



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dent of the Duluth Chamber of Commerce and general chairman of the campaign.

Leaders of the public subscription campaign hope to raise \$750,000 to insure erection of a proposed 141-bed addition to the hospital, with expanded laboratory, pathological and other technical facilities.

* * *

The annual convention of the Minnesota Hospital Association was held in Minneapolis at Hotel Radisson on May 15, 16, and 17, with President Earl C. Wolf, Rochester, presiding.

One of the featured speakers at the meeting was George Bugbee, executive director of the American Hospital Association, who discussed "National Problems Confronting Hospitals" and also spoke on "Hospital Accounting and Its Relationship to Reimbursable Formula."

Other speakers on the three-day program were Miss Nellie Gorgas, administrator of St. Barnabas Hospital, Minneapolis, and president-elect of the Minnesota Hospital Association; Hubert Humphrey, mayor of Minneapolis; Dr. Malcolm MacEachern, associate director of the American College of Surgeons; and Miss Lucille Pietry, nursing consultant of the U. S. Public Health Service.

* * *

At a meeting held on May 6, citizens of Anoka and the surrounding area began preliminary organization to start a drive for the construction of a hospital in the community. It was voted at the general meeting to elect a board of directors, to incorporate, and to have a large public relations committee with representatives from each township, rural Hennepin county and each ward in Anoka.

* * *

Recent speakers at the monthly staff meetings of St. Luke's Hospital in Duluth have been Dr. L. N. Leven, Saint Paul (Skin Transplants); Dr. Norman Johnson, Minneapolis (Neuropsychiatric Diseases); Dr. Mark B. Coventry, Rochester (The Surgical Treatment of Arthritis); and Dr. E. Gordon, Madison, Wisconsin (Amino Acids).

Staff members of St. Luke's Hospital have recently participated in several regional medical meetings:

Rice Lake (Wis.) County Medical Society meeting—Papers were presented by Dr. A. H. Wells, Dr. Harold Joffe, and Dr. E. E. Barrett.

Tricounty Medical Society meeting—Papers presented by Dr. S. H. Boyer, Jr., Dr. F. C. Jacobson, Dr. A. L. Abraham, and Dr. C. H. Mead.

Interurban Academy of Medicine meeting—Papers presented by Dr. Harold R. Joffe, Dr. P. B. Boman, and Dr. C. H. Mead.

Douglas County Medical Society meeting—Papers presented by Dr. F. C. Jacobson and Dr. C. H. Mead.

MEEKER COUNTY TUBERCULOSIS CONTROL PROJECT

(Continued from Page 636)

A considerable number from adjacent counties who have heard of the Meeker County physicians' interest in tuberculosis are requesting examinations. At present, all patients entering the Litchfield hospital have the tuberculin test administered, and the reactors are completely examined for clinical disease. Moreover, each physician in the county continues to administer as many tuberculin tests as possible in his office each week. Thus, our tuberculosis activities are being perpetuated, and when normal conditions have been restored throughout the county, we plan to resume an even more vigorous campaign against this disease.

Through the demonstration project, our physicians have become well informed on all phases of tuberculosis work. Their present capabilities in this field probably never would have been achieved without the demonstration. Inasmuch as the physicians donated their time and work, and no outside equipment or personnel was introduced, the general public has a kindly feeling toward the medical profession, as well as confidence in its integrity and ability to provide them with all that is necessary to control disease. Our satisfaction in the accomplishment to date is such that we feel justified in recommending an identical program to the physicians of all other counties of the State of Minnesota.



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BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical Libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

COLOR ATLAS OF HEMATOLOGY, With Brief Clinical Descriptions of Various Diseases. Roy R. Kracke, M.D., Dean and Professor of Clinical Medicine, Medical College of Alabama, Birmingham, Alabama. 204 pages. Illus. Price, cloth, \$5.00. Philadelphia: J. B. Lippincott Co., 1947.

MILK AND FOOD SANITATION PRACTICE. H. S. Adams, B.Sc. Chief, Bureau of Environmental Hygiene, Division of Public Health, Minneapolis, and Lecturer, School of Public Health, University of Minnesota. 311 pages. Illus. Price, cloth, \$3.25. New York: The Commonwealth Fund, 1947.

OFFICE IMMUNOLOGY, Including Allergy. A Guide for the Practitioner. Edited by Marion B. Sulzberger, Professor of Clinical Dermatology and Syphilology and Director of New York Skin and Cancer Unit, New York Post-Graduate Medical School and Hospital; and Rudolph L. Baer, Instructor in Dermatology and Syphilology, New York Skin and Cancer Unit, New York Post-Graduate Medical School and Hospital. 420 pages. Illus. Price, \$6.50, cloth. Chicago: Year Book Publishers, Inc., 1947.

Classified Advertising

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COMMUNITY-WIDE CHEST
X-RAY SURVEYS

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enough span of time to prevent the disease from spreading to a new generation of contacts. Five years should be the maximum time in which to examine and follow up the majority of the adult population in the entire United States.

Such rapidity of program expansion will be costly as a short-time expenditure, but inexpensive when compared to the cost of control over a period of several decades. The savings in sickness and death, although not easily demonstrated in the coldly impersonal columns of balance sheets, are the real accomplishments of such a plan. Prevention is cheap, compared to the cost of redemption after the damage is done. The common rights of humanity call for such a course of action.

Poverty remains, however, as the principal obstacle still standing in the path of national efforts to banish tuberculosis from among the people of the United States. We cannot conquer this disease until the standard of living improves greatly, especially among many of the nonwhite groups of our population. Their death rates from tuberculosis are unnaturally high, exposure is intense and continuous, and living conditions are often deplorable.

The effective strength of a broad program of control, based on sound epidemiological principles, will develop it only in proportion to its public acceptance and support. When the people demand a total assault on tuberculosis, we are prepared to measure the problem, plan the offensive and destroy the tubercle bacillus within a measurable time.

The ubiquity of tuberculosis and the magnitude of its harmful effect on the health and happiness of the American people are at last arousing the public conscience and stimulating the people into nation-wide action.

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